AMERICAN ANNALS OF THE DEAF

Official Organ

Conference of Executives of American Schools for the Deaf
Convention of American Instructors of the Deaf

Edited by

IRVING S. FUSFELD

Under the Direction of

PERCIVAL HALL, of the District of Columbia
FRANK M. DRIGGS, of Utah
MADISON J. LEE, of Kentucky
OSCAR M. PITTENGER, of Indiana
ELWOOD A. STEVENSON, of California
IGNATIUS BJORLEE, of Maryland
J. W. BLATTNER, of Oklahoma

Executive Committee of the Conference

MAY
1935

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VOL. LXXX MAY, 1935 NO. 3

AMERICAN ANNALS OF THE DEAF

Call to Twenty-Ninth Meeting of the Convention of American Instructors of the Deaf

A CORDIAL invitation is extended to American educators of the deaf to attend the Twenty-Ninth Meeting of the Convention of American Instructors of the Deaf at Jacksonville, Illinois, June 17 to 22, 1935.

Plan now to attend. A stimulating program is being prepared. Joint participation by the Conference of Executives of American Schools for the Deaf, the American Association to Promote the Teaching of Speech to the Deaf, and the Society of Progressive Oral Advocates is planned.

Reservations for rooms in the Illinois School are now being accepted in the order applications are received, at the following rates for the entire time:

Rooms—$5.00 per person
Meals — 7.00 per person

An advance deposit of $1.00 will be requested for each reservation. Deposits will be refunded if reservations are cancelled prior to May 1.

The following special rates are offered by Jacksonville hotels to those attending the Convention:

New Dunlap Hotel

Single Room with bath	$2.00, $2.25 and $2.50
Single Room without bath	1.50, 2.00
Double Room with bath	3.50, 4.00
Double Room without bath	2.75, 3.00
Twin Beds with bath	4.50, 5.00

New Pacific Hotel

Single Room with bath	$2.00 and up
Double Room with bath	3.00 and up
Single Room without bath	1.25
Double Room without bath	2.00

Address all communications to D. T. Cloud, Managing Officer, Illinois School for the Deaf, Jacksonville, Ill.

ALVIN E. POPE,
President of the Convention

Special Meeting of the Conference of Executives of American Schools for the Deaf

JACKSONVILLE, ILLINOIS, JUNE 19-20, 1935

TENTATIVE PROGRAM

Wednesday, June 19

Public Session

11:00 A.M.—Large Auditorium

Address—Special Education for Physically Handicapped Children in Relation to State and Federal Agencies, Dr. Elise H. Martens, U. S. Office of Education.

Paper—Results of Standard Tests at Gallaudet College, Prof. Irving S. Fusfeld, Gallaudet College.

Paper—Résumé of Research in American Schools for the Deaf, Dr. Harris Taylor, principal, Lexington School.

Executive Session

3:00 P.M.—Small Auditorium

Paper and Report—Certification of Teachers, Dr. Ignatius Bjorlee, chairman, Committee on Certification.

Report on the AMERICAN ANNALS OF THE DEAF, by the Editor.

Report of the Executive Committee, Dr. Percival Hall, chairman.

Adoption of By-laws.

Thursday, June 20

Executive Session

3:00 P.M.—Small Auditorium

Report—The Committee on Pensions of Teachers, Daniel T. Cloud, managing officer, Illinois School.

Report—Committee on Normal Training of Teachers of the Deaf, Dr. Ignatius Bjorlee, chairman, Committee on Certification.

Paper—Normal Training of Deaf Teachers, Leonard M. Elstad, superintendent, Minnesota School.

Discussion of address by representative of the Office of Education, Elwood A. Stevenson, principal, California School, Dr. E. A. Gruver, superintendent, Pennsylvania School.

PERCIVAL HALL,
Chairman Executive Committee

Announcement Concerning Certification of Teachers of the Deaf

A MEETING was held at the Cosmos Club, Washington, D.C., March 2, 1935, to consider the question of certification of teachers of the deaf.

The following persons were present:

For the Conference of Executives of American Schools for the Deaf: Dr. Percival Hall, chairman, Executive Committee; Dr. Ignatius Bjorlee, chairman, Committe on Certification, Prof. Irving S. Fusfeld, secretary, Executive Committee.

For the American Association to Promote the Teaching of Speech to the Deaf: Dr. Elbert A. Gruver, president; Dr. Harris Taylor, chairman, Executive Committee.

For the Convention of American Instructors of the Deaf: Supt. Victor O. Skyberg, secretary.

Dr. Hall was chosen as chairman of the meeting and Professor Fusfeld acted as secretary.

The following action was agreed upon:

1. Resolved, that the Conference of Executives of American Schools for the Deaf, as the organized body representing the executive authority, is properly the agency to deal with the matter of certification of teachers of the deaf.

2. All applications for certification pending with the Conference of Executives of American Schools for the Deaf or with the American Association to Promote the Teaching of Speech to the Deaf will be considered separately by the respective organizations until acted upon finally.

3. After March 2, 1935, all *new* applications for certification by teachers of the deaf are to be made only to the Conference of Executives of American Schools for the Deaf.

4. Teachers who have been registered for certification under the Association, but whose registration has lapsed, may be registered for certification by the Conference on the payment of the same fee as formerly required by the Association for a renewal, namely $3.00.

5. A teacher who holds an active certificate from the Association (that is, a certificate which has not expired) shall

pay a single fee not to exceed two dollars ($2.00) upon application for certification by the Conference.

6. For permanent certification by the Conference the transfer from a lower to a higher class shall be made without further cost to the applicant.

7. All records of the Association with respect to applications for certification with that body are to be offered as a loan to the Conference, to be maintained as a separate file, and to be made available to the Association upon request.

8. Any question or misunderstanding arising from this transfer or adjustment is to be referred for final decision to a joint committee comprising the chairman of the Executive Committee of the Conference (Dr. Hall), the chairman of the Executive Committee of the Association (Dr. Taylor), and the chairman of the Committee on Certification of the Conference (Dr. Bjorlee).

9. The secretary was instructed to prepare a statement of the above-described plan, and subsequent changes, to be published simultaneously and in identical form in the American Annals of the Deaf, the Volta Review, or other official publications of the profession.

IRVING S. FUSFELD, *Secretary*

The Handicapped Child an Asset to the State[1]

By PERCIVAL HALL, LITT.D.
President, Gallaudet College, Washington, D.C.

EVERYONE recognizes that the loss of hearing or the loss of sight is a severe handicap to any person, and particularly to a child who has not yet received his education. Long ago Thomas Hopkins Gallaudet and others interested in deaf children established a free school for their training at Hartford, Connecticut. This was opened on April 15, 1817. It was established by private contributions, by legislative grants from the State of Connecticut, and by a grant from the Congress of the United States. New York followed with the opening of a school for deaf children in 1818, and the third free school for the deaf was established in Philadelphia in 1820. All of these schools received considerable private aid, but it was not long before it was recognized that it is the duty of the state itself to provide education for its handicapped children, and in 1829 the State of Kentucky established the first school for the deaf supported entirely by public funds. Other states followed suit until now every state in the Union, except four, is supporting through public taxation schools for the instruction of its deaf children within its borders. Those four states are sending their children to be well educated in nearby schools at State expense. The history of the education of blind children has followed much the same course, beginning with the establishment of the first schools for the blind, Perkins Institution near Boston and the New York School for the Blind. Now the sentiment in the hearts of all of our legislators and educators that our children handicapped by these defects should be provided with just as good an education as the hearing and seeing children who form the vast majority has grown to be a fixed conviction. In some instances schools for both these classes of children have been combined under one administrative head for the pur-

[1] An address delivered at the celebration of the Fiftieth Anniversary of the Foundation of the Florida School for the Deaf and the Blind, St. Augustine, Fla., March 21, 1935.

pose of simplicity in operation, as it is arranged in the State of Florida. A review in the field of the education of deaf children shows that at the present time nearly 20,000 of these young folks are enrolled in our public school system as against less than 1,000 educated in private schools. Over 6,000 blind children were enrolled in schools in 1933. Further, we find that over three quarters of them all are being trained in residential schools of the type which you are so fortunate to have in this institution supported by the State of Florida.

Before taking up my principal theme of the handicapped child as an asset to the state, I want to congratulate your state authorities on the beautiful school which has been set up in St. Augustine. It has done splendid work for the residents of your state, and has been ably administered by its authorities. There was a time when social workers and many others took up the cry that "any home is better than any residential institution", and when their great effort was directed to placing homeless children in private homes, when residential schools of the type of this institution were looked upon askance as breaking up the ties between the home and the child. Small schools for all our children without handicap were maintained in scattered points throughout every state, with the idea of sending the child for its education to a nearby schoolhouse and bringing it back to its home as soon as possible. The slogan I mentioned above I do not hear at the present time. The small public schools in the rural districts are being abandoned. Their place is being taken by larger and better schools where the children have facilities for proper grading and supervision, for playgrounds and regulated sports. In our large cities children are often given nourishing lunches because they can not obtain them at home. Their study is supervised in the afternoons and their sports are also provided for and given careful supervision. In many cases the child is home only for a brief period in the evening and at the school during the larger part of the day. Why has this change come about? Partly no doubt it is due to a sensible conclusion as to the benefit of better paid teachers, better graded classes, better equipped schools, and better regulated

sports. Part of it is due to the giving up of farm homes and the withdrawal of the population into the cities. Part of it is due to the increased employment of married women and to the necessity for the care of the child more and more outside of its own home. Certainly we have come to the point where we no longer believe that "any home is better than any residential school or institution" and to the definite knowledge that particularly in the special education of the handicapped child, the well organized residential school, with its arrangements for careful medical attention, for instruction by expert teachers, for supervision of play, for character training and development, and last, but by no means least, for vocational training, should be strongly supported by those who wish to see our handicapped people taking their proper places in industrial and political life.

In the various states of the Union there has been invested between thirty and forty million dollars in the plants of such schools as this beautiful Florida School for the Deaf and the Blind in order that the deaf children of the various states may receive the best possible education. Millions of dollars are asked for each year in our various state legislatures for the support of such schools. Naturally our feelings are touched by the burden of deafness and of blindness and we expect a warm response to the appeals of those engaged in the education of these groups of children for the public funds with which to carry on our work. There may come, however, into the minds of many of you the questions: "After all does it really pay?" "Are we making a proper investment of the public money in such places as this to train our deaf and blind children?" The answers to these questions are clear. By proper training, even at a great expense, the handicapped child may be made, and has been made, an actual asset to the state. How can we show this to be true?

In the first place, our deaf and blind children are trained in character in these residential schools. When they go out into the community, they seldom join that great class which prey upon the goods and lives of our citizens by kidnapping, thievery, trickery, and fraud that cause an annual expense in

the upkeep of prisons, courts, and officers of law, together with their depredations, of thirteen billion dollars a year. I have been engaged in the education of the deaf for over forty years, most of the time in the city of Washington. During that time I have known of only two serious offenses against the law committed by deaf persons in the District of Columbia. As far as the deaf citizens of the United States go, we could almost abolish our criminal courts and our police officers. The deaf and the blind are peaceful, law-abiding citizens, an asset to the state in this respect.

The expense to the state for free medical service to the deaf and the blind is very small. Nobody is more careful in the investigation into health conditions than our great life insurance companies. Some of them have already proved to their own satisfaction that the deaf person is just as good a risk as the average citizen and offer life insurance at no additional premium to our deaf citizens. And why should this not be so? I am confident that I am correct in saying that the physical care, physical instruction, the medical oversight, and finally on graduation the general health of the pupils of this school of yours right here where we now stand is superior to the average condition of the children of the same age throughout the state of Florida. With skilled nursing, up-to-date hospital, and competent physicians, with ample playgrounds, physical directors, and participation in healthful sports, the deaf and blind children residing here have unusual facilities for their care and their physical improvement. They thus become physically assets to the state.

Now comes another statement which I will make that may be somewhat surprising. The last available census figures showed that 88 per cent of the adult deaf persons of the United States were self-supporting. The percentage of blind adults of the United States who were self-supporting was also surprisingly large, 78 per cent of the adult blind men being in this category. The adult population of the whole country at the time these figures were collected showed that less than 90 per cent of all adults were self-supporting. While these figures may not hold for the deaf and the blind at the present time of poor business, neither does the 90 per

cent for all adults. Figures which were collected in the District of Columbia and other areas only a few months ago show that at least 60 per cent of the deaf adults of the United States and nearly as large a proportion of the blind are today self-supporting citizens. Within my own experience I have checked up the occupations, salaries, and the working condition of hundreds of our own graduates from Gallaudet College. They are engaged in agriculture, architecture, chemistry, bacteriology, accounting, banking, library cataloging, dentistry, illustrating, printing, and publishing, photo engraving, the ministry, teaching, and in scores of other occupations. Hundreds of them own and operate their own automobiles and a large proportion of them own homes and have families of bright and intelligent children. The secret of this success is not hard to find. First, as I have said, the characters of these children are molded in the residential schools to which they go. They are given habits of obedience, reverence, truthfulness, and upright living. Their bodies are made sounder and stronger. They are taught in various subjects by skilled teachers, and many of them attain a wonderful proficiency in educational subjects. A number of the graduates of this school each year go on to higher educational institutions—the deaf to Gallaudet College in Washington, and the blind to schools in your own state. Deaf and blind citizens have risen to the highest places in our national life. A part of the secret of the success of these handicapped young people I have scarcely mentioned yet. This is their vocational training, and here again you are fortunate in this state to have a residential school in which your deaf and blind children may be gathered together in such numbers that it is not too expensive to provide them with instruction in mattress making, broom making, woodworking, agriculture, printing, baking, barbering, dressmaking, shoe repairing and other vocations and trades. These children go out into the world with trained hands. They go out into the world with trained bodies. They go out into the world with trained minds. They have been taught to keep reasonable hours of work, play, and rest. They are able to compete with their seeing or hearing brothers and sisters in a great many lines

of work without any real handicap after all, and they are actually making good today throughout your state and throughout the United States as honest, independent, and upright citizens. All they want from you, ladies and gentlemen, is a chance to make good.

Now I maintain that an honest and upright citizen is an asset to the state, even if he is unable to get employment at present. There are many such people in our states today, and that is one of the problems, the solution for which our government is trying to find. Such people are being placed on public works projects such as reforestation, development of public buildings and roads. But I maintain further that even considering all the capital invested in our schools for the deaf and the blind and all the annual expenditures which are made for their education and support, and all the unemployment now evident, that these handicapped young people are a real asset from the point of view of earning dollars and cents. I believe I may say without contradiction that the earnings of the deaf and blind of the United States are annually equal to more than the expenditures for the education of such children of school age and that a high return in addition is made on the capital invested in the schools built for their service throughout the land. The government of the United States has expended in the purchase of lands and erection of buildings for Gallaudet College almost $1,000,000. It is expending for upkeep for its average of one hundred forty students annually about $130,000 per year. We now have living in this country about 1600 graduates. If even a quarter of these, and I am sure this is far below the actual truth, earn each year $1,000 (I may say many of our younger graduates are earning this amonut), their income would represent over four times the annual outlay for the support of our college, or equal the outlay for support and 27 per cent on the total permanent investment. How many business men today would not be willing to invest in an enterprise which would return to them each year all annual expenses, and 27 per cent on the invested capital itself?

I believe that you will agree with me then, that the child

handicapped by blindness or deafness, if properly educated and properly directed, becomes an asset to the state. We can agree that these conditions of deafness and blindness are to be avoided if possible. We would like to see blindness disappearing from among our population and in fact it is growing distinctly less. We would like to see deafness prevented in every possible case, and in fact our physicians are more and more able to control many of the diseases which have in the past caused this handicap. It seems sad that any of our children are so handicapped. We must not feel, however, that they, themselves, are sad or morose. All you have to do is to visit a school of the type in which we stand today, to hear the music produced by your blind children, to see the happy faces of the deaf children at play, and to follow them out into their life after school with the splendid opportunities afforded them here, and I belive you will agree with me that these handicaps from which they have suffered are being overcome and will be overcome.

I am sure you will agree with me that the history of this school founded fifty years ago, by an intelligent and far-seeing deaf man, whom we all honor today, deserves in its splendid work the support of every citizen of this state. I am sure you will never regret the funds which are contributed for its support and upkeep, and even for the hardest headed business man that can be found among you, I believe that the business of the training of these children can be put in dollars and cents as a paying one.

This school has been and should continue to be the pride of the citizens of Florida—an asset in the high standard of educational work provided for your people, putting forth into your population year by year trained young men and women who can be counted on to make your state wealthier and better in every way.

You may be sure that these young people sent by you and trained by you in this wonderful school become in after life an asset to the great state of Florida from the point of view of character, of health, of civic spirit, of successful endeavor, or earning power, of happiness, and independence.

The Federal Survey of the Deaf and Hard of Hearing Part III[1] Present Earnings

By HELMER MYKLEBUST, B.A.
Normal Fellow, Gallaudet College
Washington, D.C.

Part Three of the report of the Federal Survey of the Deaf and Hard of Hearing is a study of the Present Earnings in relation to factors such as Age of Onset of Deafness, Means of Communication, and Amount of Educational Training, in order to determine to what degree these factors have influenced the wage scale. The aim is to show the relationship between the wages of those persons employed at the time of the survey and the factors that have influenced the earnings, and thus attempt to determine whether these factors should or could be controlled. So that this discussion may not be confused with Part Two of the survey report, it is here pointed out that Part Two was a study of the employment status of all the people interviewed, without reference to their earnings; whereas Part Three deals only with the group that was employed at the time of the survey and the factors that have influenced the wages this group received.

The tables on which this discussion is to be based deal with two different totals. The tables that have 19,580 as the total deal with the group that was employed when the grand total of deaf and hard of hearing were interviewed. The tables that have 4,966 as the total deal with the group the members of which were still in the employ of the employers who were interviewed. Thus it is possible to have the reaction of both the employee and the employer, and to make comparisons.

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[1] Continued from the March ANNALS: The Federal Survey of the Deaf and Hard of Hearing, Part I, Preliminary Data, pp. 116-125; Part II, The Employment Status of the Deaf and Hard of Hearing, pp. 126-142.

Employment Status

According to Table I, of the 4,966 deaf and hard-of-hearing persons included in the survey who were still in the employ of the employers interviewed, 3,455 were men and 1,511 were women. That is, 65% of the men, and 66.3% of the women whose employers were interviewed were still em-

TABLE I
EMPLOYMENT STATUS OF 7,680 PERSONS WHOSE EMPLOYERS WERE INTERVIEWED

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
TOTAL NUMBER RESPONSES	7,640	100.0	5,358	100.0	2,282	100.0
Still in employ of employer interviewed	4,966	65.0	3,455	64.5	1,511	66.3
Released—1933	1,004	13.2	690	12.9	314	13.8
Released—1932	513	6.7	357	6.6	156	6.8
Released—1931	380	5.0	301	5.6	79	3.4
Released—1930	242	3.1	182	3.4	60	2.6
Released prior to 1930	535	7.0	373	7.0	162	7.1
Unreported	40		30		10	

ployed. Of the group that was no longer employed, the largest single number were released in 1933, there being almost twice as many released in this period as in any previous year. This no doubt was largely due to the general increase of unemployment at this time, as has been pointed out in Part Two. Comparing the status of the men with that of the women it will be noted that a slightly greater number of women were released in 1933, 13.8% of the women as against 12.9% of the men released during this period. However, until 1931 more of the males were released each year, while in 1932 the percentages were practically equal.

1. Length of Time in Present or Most Recent Position, According to the Employer's Statement.—Table II is a simple distribution showing the length of time the individuals had been in their present or most recent positions. It is interesting to note that 4,691 or 61.7% had been employed

in a given position for over three years. A total of 7.6% had been employed in a given position from two to three years, 9.4% from one to two years and 21.3%, or a little more than one fifth for less than one year. These figures may indicate the stability of the deaf and hard-of-hearing employee as an employment quality.

TABLE II

LENGTH OF TIME IN PRESENT OR MOST RECENT POSITION, ACCORDING TO EMPLOYER'S STATEMENT

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
TOTAL NUMBER RESPONDING.....	7,620	100.0	5,345	100.0	2,275	100.0
In position less than 1 year.....	1,626	21.3	1,101	20.6	525	23.1
In position one to 2 years.....	728	9.4	474	8.9	254	11.2
In position two to 3 years.....	575	7.6	371	7.0	204	8.9
In position more than 3 years.....	4,691	61.7	3,399	63.5	1,292	56.8
Unreported.....	60		43		17	

Of the men, 63.5% had remained in their present or most recent position for over three years and 20.6% or one fifth for less than one year. The percentages for the women indicate a lesser permanence as 56.8% or a little more than one half had remained in a given position for more than three years and 23.1% or a little less than one fourth for less than one year.

EARNINGS

Table III is a frequency distribution of the earnings as stated by the employer. If board and room were received as part of the wage, they have been included in the wage estimate. This table shows that of the total of 4,880 persons responding, 2,057, or 42.1% were receiving from $10 to $19 per week. The next largest group was that receiving from $20 to $29 per week and the third group in size was that receiving less than $10 per week. This shows that 56.3%, or more than half, were receiving $19 or less per week, and

82.2%, or more than four fifths were receiving $29 or less per week. The remainder, less than one fifth, were receiving from $30 to over $50 per week. The median wage for the group was $18.08 per week. The median for the men was $25.30 and the median for the women was $13.00 per week. It will be noted, too, that the wage report was much less favorable for the women in all of the wage groups.

TABLE III

DISTRIBUTION OF EARNINGS ACCORDING TO EMPLOYER*

(Total Reported on—3,455 Males—1,511 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
TOTAL NUMBER RESPONDING	4,880	100.0	3,386	100.0	1,494	100.0
Earning $50 or more	143	2.9	122	3.6	21	1.4
Earning $40 to $49	215	4.3	183	5.7	32	2.1
Earning $30 to $39	522	10.6	437	12.9	85	5.7
Earning $20 to $29	1,268	25.9	1,025	30.2	243	16.3
Earning $10 to $19	2,057	42.1	1,234	36.5	823	55.1
Earning less than $10	675	14.2	385	11.1	290	19.4
Unreported	86		69		17	

* In the estimates in this and all subsequent tables, if board and room were included as part of the wage, they have been included in the estimate.

1. The Relation of Present Earnings to Age.—Table IV shows the relation between the earnings and age of employee. In order to determine definitely the peak of the earning capacity, the median for each age-group was computed. The medians were as follows:

MEN			WOMEN	
Number	*Median Wage Per Week*	*Age in Years*	*Median Wage Per Week*	*Number*
76	$9.27	16–19	$10.91	69
1,285	15.48	20–29	13.88	781
1,775	20.14	30–39	16.03	741
1,735	21.79	40–49	15.41	698
1,281	22.73	50–59	14.28	475
956	19.68	60–69	10.27	235
76	21.72	70–79	9.50	10

TABLE IV

RELATION BETWEEN PRESENT EARNINGS AND AGE
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		AGE														UNREPORTED RE. AGE	
			Male							*Female*								
	Male	*Female*	16–19	20–29	30–39	40–49	50–59	60–69	70–79	16–19	20–29	30–39	40–49	50–59	60–69	70–79	*Male*	*Female*
Total reporting re. wk. earnings	7,184	3,009	76	1,285	1,775	1,735	1,281	956	76	69	781	741	698	475	235	10	14	37
Earning																		
$50 or more	502	63	0	7	80	144	148	116	7	0	2	10	23	18	10	0	2	0
$40 to $49	344	82	0	18	79	111	75	56	5	0	3	16	31	21	9	2	1	1
$30 to $39	854	158	0	81	239	255	179	91	9	0	15	50	59	27	6	1	0	1
$20 to $29	1,805	522	4	280	523	464	293	219	22	1	109	173	133	78	27	1	4	9
$10 to $19	2,628	1,357	31	638	678	557	400	303	21	39	465	350	252	179	71	1	2	12
Less than $10	1,051	821	41	261	176	204	186	171	12	29	187	142	200	152	112	5	1	4
Unreported re. wk. earnings	180	73	3	6	31	41	42	53	4	0	6	14	25	14	12	2	4	10
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Earning																		
$50 or more			0.0	0.5	4.5	8.3	11.6	12.1	9.2	0.0	0.3	1.4	3.2	3.8	4.3	0.0		
$40 to $49			0.0	1.4	4.4	6.4	5.8	5.9	6.6	0.0	0.4	2.2	4.5	4.4	3.8	20.0		
$30 to $39			0.0	6.3	13.5	14.7	14.0	9.5	11.8	0.0	1.9	6.7	8.4	5.7	2.5	10.0		
$20 to $29			5.3	21.8	29.5	26.7	22.9	22.9	29.0	1.5	14.0	23.3	19.0	16.4	11.5	10.0		
$10 to $19			40.8	49.7	38.2	32.1	31.2	31.7	27.6	56.5	59.5	47.2	36.1	37.7	30.2	10.0		
Less than $10			53.9	20.3	9.9	11.8	14.5	17.9	15.8	42.0	23.9	19.2	28.8	32.0	47.7	50.0		

The peak of the earning capacity for the men fell between 50 and 59 years and the median wage at that point was $22.73 per week. The minimum earning power for the men came during youth, between the years of 16 and 19, the median wage during that period being $9.27 per week.

The women reached the peak of their earning power considerably earlier than did the men, as their high point lay between the years of 30 and 39, the median wage during that period being $16.03 per week. The low point for the women, according to the table, was between the years 70 and 79, the median wage at that time being $9.50 per week. However, it should be noted there were considerably less women in each age-group than men.

2. Relation of Earnings to Means of Communication.— Tables V and VI will be discussed together as they both deal with the means of communication used by the employee in communicating with his foreman or employer. To determine the variation of the wages received by the groups using different means of communication the medians were again computed and were as follows:

ACCORDING TO THE EMPLOYERS' REPORT

Male Employees Median Wage Per Week	*Means of Communication*	*Female Employees Median Wage Per Week*
$21.31	Group Using Spoken Language	$15.96
17.94	Group Using Manual Method	14.53
20.43	Group Using Writing	13.54

ACCORDING TO THE EMPLOYEE'S REPORT

Male Employees Median Wage Per Week	*Means of Communication*	*Female Employees Median Wage Per Week*
$19.50	Group Using Spoken Language	$15.34
16.90	Group Using Manual Method	13.29
18.12	Group Using Writing	12.71

Both these reports show that those persons using spoken language had the advantage on the wage scale. This was true for both the men and the women. Both reports also show a difference between men and women as to the superiority of the manual or the writing methods. For the men, the order of methods was spoken language, writing, and the

TABLE V

EMPLOYER'S REPORT SHOWING RELATION BETWEEN PRESENT EARNINGS AND MEANS OF COMMUNICATION
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		MEANS OF COMMUNICATION						UNREPORTED RE. MEANS	
			Male			*Female*				
	Male	*Female*	Spoken Language	Manual Method	Writing	Spoken Language	Manual Method	Writing	*Male*	*Female*
Total reporting re. wk. earnings	3,324	1,464	1,465	711	1,148	899	276	289	68	32
Earning $50 or more	108	21	74	13	21	19	2	0	14	0
$40 to $49	176	29	107	27	42	25	4	0	7	3
$30 to $39	434	82	208	77	149	70	10	2	3	3
$20 to $29	1,008	241	420	189	399	181	42	18	17	2
$10 to $19	1,218	806	473	317	428	436	161	209	16	17
Less than $10	380	285	183	88	109	168	57	60	5	5
Unreported re. wk. earnings	63	15	42	7	14	14	1	0	6	2
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			5.0	1.8	1.8	2.1	0.7	0.0		
$40 to $49			7.3	3.8	3.7	2.8	1.5	0.0		
$30 to $39			14.2	10.8	13.0	7.8	3.6	0.0		
$20 to $29			28.7	26.5	34.7	20.1	15.2	6.1		
$10 to $19			32.3	44.6	37.3	48.5	58.3	73.2		
Less than $10			12.5	12.5	9.5	18.7	20.7	20.7		

TABLE VI

RELATION BETWEEN PRESENT EARNINGS AND MEANS OF COMMUNICATION—ACCORDING TO EMPLOYEE'S REPORT

(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		MEANS OF COMMUNICATION						UNREPORTED RE. MEANS	
			Male			*Female*				
	Male	*Female*	Spoken Language	Manual Method	Written Language	Spoken Language	Manual Method	Written Language	*Male*	*Female*
Total reporting re. wk. earnings	7,092	2,993	3,950	881	2,261	2,203	278	512	104	41
Earning $50 or more	499	63	418	19	62	62	1	0	5	0
$40 to $49	334	83	228	27	79	78	4	1	9	0
$30 to $39	844	156	500	100	244	147	6	3	12	3
$20 to $29	1,780	524	928	206	646	445	38	41	28	7
$10 to $19	2,598	1,344	1,320	345	933	888	145	311	31	24
Less than $10	1,037	823	556	184	297	583	84	156	16	7
Unreported re. wk. earnings	182	85	153	16	25	74	4	7	3	0
				Male			*Female*			
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			10.5	2.2	2.6	2.8	0.3	0.0		
$40 to $49			5.7	3.0	3.5	3.5	1.4	0.2		
$30 to $39			12.6	11.3	11.0	6.7	2.2	0.6		
$20 to $29			24.0	23.4	29.3	20.2	13.7	8.0		
$10 to $19			33.3	39.2	41.3	40.3	52.2	60.7		
Less than $10			14.0	20.9	13.4	26.5	30.2	30.5		

manual method last, the median being lowest for the group using the manual method. But for the women the order of preference as indicated by the wage scale was spoken language, the manual method, and writing last, the median being lowest for those using writing in this case.

It is also interesting to note that in every instance, the medians were higher according to the employer's report than they were according to the employee's report.

3. The Relation of Earnings to Age of Onset of Deafness.—Table VII represents the relationship between earnings and the age of onset of deafness. We note here that of the men and women who were receiving over $50 per week the largest group became deaf or hard of hearing in adulthood, and the second largest group of those receiving over $50 per week, for both males and females, was the group that became deaf or hard of hearing in adolescence. Furthermore, the sum of the percentages of those men and women receiving $20 or less per week was largest in the "Infancy" and "Childhood" groups. This indicates that the person deaf from birth or childhood had a greater handicap in commanding wages than the person who became deaf or hard of hearing in later life.

4. The Relation between Earnings and Degree of Deafness.—Table VIII shows the relationship between earnings and the degree of deafness. From this table also we notice that those who can hear loud speech with or without an earphone have the advantage on the wage scale. This would be expected as this would include the hard-of-hearing group. Of the 3,123 men who could understand loud speech without an earphone, 11.1% received over $50 per week, whereas of the 324 males who could understand loud speech with an earphone 15.4% received over $50 per week. This indicates a slightly greater efficiency on the part of those using earphones. However, part of this difference might be accounted for by the big difference in the number of cases, there being comparatively few cases in the group using earphones. For the women the distribution was more, as would be expected, because in the group receiving over $50 per

TABLE VII

RELATION BETWEEN PRESENT EARNINGS AND AGE OF ONSET OF DEAFNESS
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		AGE OF ONSET OF DEAFNESS								UNREPORTED RE. ONSET	
			Male				*Females*					
	Male	*Female*	Infancy	Childhood	Adolescence	Adulthood	Infancy	Childhood	Adolescence	Adulthood	*Male*	*Female*
Total reporting re. wk. earnings	7,173	3,021	2,105	2,477	554	2,037	740	842	459	980	22	16
Earning $50 or more	504	62	45	108	66	285	1	9	6	46	2	2
$40 to $49	345	82	66	110	36	133	5	7	12	58	0	0
$30 to $39	853	159	211	290	79	273	14	24	39	82	3	0
$20 to $29	1,803	529	531	687	149	436	73	132	106	218	4	2
$10 to $19	2,621	1,360	890	957	154	620	438	428	198	296	8	10
Less than $10	1,047	829	362	325	70	290	209	242	98	280	4	2
Unreported re. wk. earnings	183	82	19	39	23	102	4	11	15	52	1	0
Total reporting re- wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			2.0	4.3	11.9	14.0	0.1	1.0	1.3	4.7		
$40 to $49			3.1	4.5	6.5	6.5	0.7	0.8	2.7	5.8		
$30 to $39			10.0	11.7	14.3	13.4	1.8	2.9	8.5	8.4		
$20 to $29			25.3	27.8	26.9	21.4	9.9	15.6	23.1	22.2		
$10 to $19			42.4	38.6	27.8	30.5	59.2	50.9	43.1	30.3		
Less than $10			17.2	13.1	12.6	14.2	28.3	28.8	21.3	28.6		

TABLE VIII

RELATION BETWEEN PRESENT EARNINGS AND DEGREE OF DEAFNESS
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		DEGREE OF DEAFNESS						UNREPORTED RE. DEGREE	
			Male			*Female*				
	Male	*Female*	Understand loud speech without earphone	Understand loud speech with earphone	Cannot understand speech at all	Understand loud speech without earphone	Understand loud speech with earphone	Cannot understand speech at all	*Male*	*Female*
Total reporting re. wk. earnings.....	7,186	3,034	3,123	324	3,739	1,700	189	1,145	8	4
Earning $50 or more.	505	63	350	50	105	54	5	4	1	0
$40 to $49..	345	83	187	17	141	62	12	9	0	0
$30 to $39..	856	159	387	47	422	124	11	24	0	0
$20 to $29..	1,804	531	717	65	1,022	370	33	128	2	0
$10 to $19..	2,627	1,367	1,028	99	1,500	648	75	644	2	3
Less than $10.....	1,049	831	454	46	549	442	53	336	2	0
Unreported re. wk. earnings.....	184	81	124	14	46	59	13	9	1	1
Total reporting re. wk. earnings.....			100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more.			11.1	15.4	2.8	3.2	2.6	0.4		
$40 to $49..			6.0	5.2	3.7	3.6	6.3	0.8		
$30 to $39..			12.4	14.5	10.3	7.3	5.8	2.2		
$20 to $29..			23.0	20.2	26.5	21.8	17.5	11.1		
$10 to $19..			32.9	30.5	40.3	38.1	39.7	56.3		
Less than $10.....			14.6	14.2	16.4	26.0	28.1	29.2		

TABLE IX

RELATION BETWEEN PRESENT EARNINGS AND GRADE OF SCHOOL COMPLETED
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		GRADE OF SCHOOL COMPLETED												UNREPORTED RE. GRADE	
			Male						*Female*							
	Male	*Female*	Never attended school	Elementary level	Junior High	Senior High	Junior College	College or Univ.	Never attended school	Elementary level	Junior High	Senior High	Junior College	College or Univ.	*Male*	*Female*
Total reporting re. wk. earnings....	7,166	3,032	38	3,553	1,325	1,301	230	719	8	1,121	509	803	177	414	28	16
Earning																
$50 or more.	490	63	0	97	50	106	25	212	0	3	7	13	7	33	1	0
$40 to $49...	347	83	1	121	54	69	19	83	0	4	3	14	12	50	0	1
$30 to $39...	848	185	3	335	139	202	51	118	0	18	14	73	20	60	4	0
$20 to $29...	1,807	578	5	940	341	305	56	160	0	129	82	197	45	125	4	2
$10 to $19...	2,621	1,331	17	1,446	556	447	57	98	5	601	249	326	58	92	13	8
Less than $10.	1,053	792	12	614	185	172	22	48	3	366	154	180	35	54	5	5
Unreported re. wk. earnings.....	184	70	3	67	22	38	12	42	1	14	7	16	8	24	1	0
Total reporting re. wk. earnings....			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Earning																
$50 or more.			2.6	2.7	3.3	8.0	10.8	29.4	0.0	0.2	1.3	1.6	3.9	7.9		
$40 to $49...			2.6	3.4	4.3	6.2	8.2	11.6	0.0	0.3	0.6	1.7	7.7	12.1		
$30 to $39...			7.6	9.5	10.5	15.3	22.2	16.5	0.0	1.5	2.8	9.1	11.2	14.5		
$20 to $29...			12.8	26.4	25.8	23.9	24.4	22.2	0.0	11.4	16.1	24.6	25.2	30.1		
$10 to $19...			43.6	40.7	42.1	33.6	24.8	13.6	62.5	53.5	48.9	40.6	32.5	22.2		
Less than $10.			30.8	17.3	14.0	13.0	9.6	6.7	37.5	33.1	30.3	22.4	19.5	13.2		

week the largest percentage occurred in the class understanding loud speech without an earphone and the second largest percentage occurred in the class understanding loud speech with an earphone. Of the 3,739 males who could not understand speech at all, 16.4% received less than $10 per week and 2.8% received over $50 per week. Of the 1,145 females who could not understand speech at all 29.2% received less than $10 per week and 0.4% received over $50 per week. This indicates a lower wage scale for the females in this group than for the males.

A striking feature of the tabular information was that the more intense the degree of deafness the greater the tendency of the drift toward the lowest wage-earning groups. Thus, among the men, 56.7 per cent of those who could not understand speech at all through hearing earned less than $20 per week, as contrasted with 44.7 and 47.5 per cent, respectively, of the two groups who could understand speech with the aid of a hearing device, or without. For the women, these contrasts were even more marked, the corresponding percentages being 85.5, 67.8 and 64.1, in the less-than-$20 groups.

5. Relation between Earnings and the Grade of School Completed.—Table IX shows the relationship between earnings and the educational attainment of the employees. Among the group who received from $40 per week to over $50 per week the percentages were considerably higher for those with college or university training. Of the 719 males having a college or university training 29.4% or a little less than three tenths received over $50 per week. Of the 414 females having a college or university training 7.9% received over $50 per week. The evidence indicates that as the degree of educational training increased, the ability to command higher wages also increased.

6. Relation between Earnings and the Education Required for the Position Held.—Table X shows the relationship between earnings and the education required for the position held, as stipulated by the employer. The medians showing this relationship were as follows:

ACCORDING TO THE EMPLOYER

Male Employees Median Wage Per Week	*Educational Requirement*	*Female Employees Median Wage Per Week*
$15.84	No Educational Training	$12.83
20.61	Elementary School Training	13.44
26.40	High School Training	18.10
37.32	College Training	34.72

These figures show clearly that the wages increased as the amount of education needed to hold the position increased. This was true for both the males and females. The successive medians, however, were lower in each case for the women. But the difference between the medians was smallest in the case of the men and women needing a college training for their positions, the median earning for the men in this group being $37.32 per week and the median for the women in the same group being $34.72 per week. This indicates that if the women have a college training they will be able to command wages that are more nearly equal to the wages received by the men.

7. Relation between Earnings and Source of Occupational Training.—Table XI shows the relationship between earnings and (1) possession of occupational training, (2) the source of occupational training, *i.e.,* in a public high or trade school, or in a school for the deaf. This table shows that those who received their occupational training in a public high or trade school had a slight advantage on the wage scale. Of the 1,065 males who received their occupational training in a public high or trade school, 11.1% received less than $10 per week and at the other extreme 19.2% or a little less than one-fifth received $50 or more per week. Of the 3,384 males who received their occupational training in a school for the deaf, 13.7% received less than $10 per week and only 2.6% received $50 or more per week. The ratio is somewhat the same for the females. But this advantage which the group who received their occupational training in a public high or trade school is shown to have had was probably due to other circumstances than the source of training, as this group would probably include the hard-of-hearing class. In comparing the group who had no occupational training with those who received

TABLE X

EDUCATION REQUIRED FOR POSITION HELD (ACCORDING TO EMPLOYER) IN RELATION TO PRESENT EARNINGS
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		EDUCATION REQUIRED								UNREPORTED RE. ED. REQ.	
			Male				*Female*					
	Male	*Female*	None req.	Elementary	High School	College	None req.	Elementary	High School	College	*Male*	*Female*
Total reporting re. wk. earnings	3,382	1,490	1,102	1,505	548	227	420	542	359	169	7	5
Earning $50 or more	122	21	3	26	39	54	2	0	1	18	0	0
$40 to $49	183	32	12	56	69	46	0	0	5	27	0	0
$30 to $39	436	84	60	200	114	62	2	4	33	45	1	1
$20 to $29	1,022	242	280	529	170	43	16	51	118	57	3	1
$10 to $19	1,234	822	536	561	123	14	285	358	161	18	0	1
Less than $10	385	289	211	133	33	8	115	129	41	4	0	1
Unreported re. wk. earnings	66	16	8	40	11	7	1	5	7	3	3	1
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			0.3	1.7	7.1	23.8	0.5	0.0	0.3	10.6		
$40 to $49			1.1	3.7	12.6	20.3	0.0	0.0	1.4	16.0		
$30 to $39			5.4	13.3	20.8	27.3	0.5	0.7	9.2	26.6		
$20 to $29			25.4	35.1	31.0	18.9	3.8	9.4	32.9	33.7		
$10 to $19			48.6	37.3	22.5	6.2	67.8	66.1	44.8	10.7		
Less than $10			19.2	8.9	6.0	3.5	27.4	23.8	11.4	2.4		

TABLE XI

RELATION BETWEEN PRESENT EARNINGS AND SOURCE OF OCCUPATIONAL TRAINING
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		SOURCE OF OCCUPATIONAL TRAINING						UNREPORTED RE. TRAINING	
			Male			*Female*				
	Male	*Female*	No occ. training	In Public High or Trade School	In School for Deaf	No occ. training	In Public High or Trade School	In School for Deaf	*Male*	*Female*
Total reporting re. wk. earnings	7,144	3,008	2,695	1,065	3,384	1,163	973	872	51	30
Earning $50 or more	501	63	208	205	88	18	43	2	3	0
$40 to $49	344	82	126	75	143	14	64	4	1	1
$30 to $39	855	153	310	171	374	36	100	17	1	6
$20 to $29	1,791	528	634	227	930	151	291	86	16	3
$10 to $19	2,610	1,359	956	269	1,385	529	311	519	20	11
Less than $10	1,043	823	461	118	464	415	164	244	8	8
Unreported re. wk. earnings	183	81	107	43	33	37	40	4	2	1
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			7.7	19.2	2.6	1.5	4.3	0.2		
$40 to $49			4.7	7.0	4.2	1.2	6.6	0.5		
$30 to $39			11.5	16.1	11.1	3.1	10.3	1.9		
$20 to $29			23.5	21.3	27.5	13.0	29.9	9.8		
$10 to $19			35.5	25.3	40.9	45.5	32.0	59.6		
Less than $10			17.1	11.1	13.7	35.7	16.9	28.0		

occupational training in schools for the deaf, it will be seen that there are more of the untrained receiving $50 or over per week. Of the 2,695 males who had no occupational training, 7.7% earned $50 or more per week and, as was noted above, of the 3,384 males who received their occupational training in a school for the deaf, 2.6% obtained $50 or more per week. Of the 1,163 females who had no occupational training, 1.5% were in the highest earning group, and of the 872 females who had obtained occupational training in a school for the deaf 0.2% got $50 or more per week. Further comparison of the untrained and those having had training in schools for the deaf reveals the fact that the percentages are practically the same for those receiving from $40 to $49 per week and likewise for those receiving from $30 to $39 per week.

8. Relation between Earnings and Extent to Which the Occupational Training Was Followed.—Table XII deals only with the group that was trained in schools for the deaf. It shows the relationship between earnings and extent to which this group followed the training they received. This table reveals the fact that as the extent of following the occupational training increased, the wages also increased.

Thus, there is an increased clustering of individuals at each descending wage level among those who did not follow at all the occupation obtained in school, and also among those who followed to a small extent the trade learned in school. For the next group, those who followed to a large extent the training obtained in a school for the deaf, the increase in numbers among the low-earning grades was not so sharp, since a greater proportion of them placed within the higher paying levels. Finally, for the last group—those who followed altogether the trade learned in school—there was a more marked tendency away from the poorer levels toward the higher-paying fields. The same general shift in favor of those who followed entirely the trade learned in school was observed for the women also.

9. Relation Between Earnings and Occupational Training Required.—Table XIII represents the relationship between earnings and the occupational training required for the

TABLE XII

RELATION OF EXTENT TO WHICH OCCUPATIONAL TRAINING WAS FOLLOWED TO PRESENT EARNINGS
(ONLY FOR THOSE TRAINED IN A SCHOOL FOR THE DEAF)
FROM QUESTIONNAIRES GIVEN 3,417 MALES AND 875 FEMALES
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		EXTENT TO WHICH TRADE TRAINING WAS FOLLOWED										UNREPORTED RE. EXTENT	
			Male					*Female*						
	Male	*Female*	No Trade training	Not at all	To small extent	To Large extent	Altogether	No Trade training	Not at all	To small extent	To Large extent	Altogether	*Male*	*Female*
Total reporting re. earnings	3,200	821	5	1,522	511	376	786	3	336	132	137	213	184	51
Earning $50 or more	84	2	0	27	8	13	36	0	0	1	0	1	4	0
$40 to $49	135	4	0	47	16	13	59	0	1	0	1	2	9	0
$30 to $39	348	19	1	116	45	38	148	0	3	1	1	14	26	0
$20 to $29	888	90	2	439	147	88	212	0	31	12	16	31	41	7
$10 to $19	1,305	483	2	666	226	172	239	1	218	82	79	103	79	30
Less than $10	440	223	0	227	69	52	92	2	83	36	40	62	25	14
Unreported re. wk. earnings	33	3	0	15	4	2	12	0	0	0	1	2	0	0
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			0.0	1.8	1.6	3.5	4.6	0.0	0.0	0.8	0.0	0.5		
$40 to $49			0.0	3.1	3.1	3.4	7.5	0.0	0.3	0.0	0.7	0.9		
$30 to $39			20.0	7.6	8.8	10.1	18.9	0.0	0.9	0.7	0.7	6.6		
$20 to $29			40.0	28.8	28.8	23.4	26.9	0.0	9.2	9.1	11.7	14.5		
$10 to $19			40.0	43.8	44.2	45.8	30.4	33.3	64.9	62.1	57.7	48.4		
Less than $10			0.0	14.9	13.5	13.8	11.7	66.7	24.7	27.3	29.2	29.1		

TABLE XIII

RELATION BETWEEN PRESENT EARNINGS AND OCCUPATIONAL TRAINING REQUIRED FOR POSITION HELD
(ACCORDING TO EMPLOYER'S REPORT)
(Number and Per Cent Distribution)

AVERAGE WEEKLY EARNINGS	TOTALS		OCCUPATIONAL TRAINING REQUIRED						UNREPORTED RE. TRAINING	
			Male			*Female*				
	Male	*Female*	No training required	School trade training	Apprentice-ship	No training required	School trade training	Apprentice ship	*Male*	*Female*
Total reporting re. wk. earnings	3,369	1,477	1,708	547	1,114	876	304	297	22	18
Earning $50 or more	122	21	52	32	38	14	6	1	0	0
$40 to $49	182	29	53	52	77	18	8	3	1	3
$30 to $39	431	82	145	99	187	44	28	10	6	3
$20 to $29	1,019	238	475	173	371	130	75	33	6	5
$10 to $19	1,232	820	717	152	363	483	144	193	2	3
Less than $10	383	287	266	39	78	187	43	57	2	3
Unreported re. wk. earnings	64	16	31	7	26	10	5	1	5	1
Total reporting re. wk. earnings			100.0	100.0	100.0	100.0	100.0	100.0		
Earning $50 or more			3.0	5.9	3.4	1.6	2.0	0.3		
$40 to $49			3.1	9.5	6.9	2.1	2.6	1.0		
$30 to $39			8.5	18.1	16.8	5.0	9.2	3.4		
$20 to $29			27.8	31.6	33.3	14.8	24.7	11.1		
$10 to $19			41.9	27.8	32.6	55.1	47.4	65.0		
Less than $10			15.7	7.1	7.0	21.4	14.1	19.2		

employee to fill the position he had, as stipulated by the employer.

The medians indicating this relationship for the various groups, as determined by Table XIII, were as follows:

	According to the Employer	
Male Employees Median Wage Per Week	*Occupational Training Required*	*Female Employees Median Wage Per Week*
$17.70	None	$14.70
24.27	School Trade Training	17.07
22.63	Apprenticeship	14.24

These figures reveal on each side the advantage in earning power to the group in which a school trade training was the requirement. This indicates that according to the employer occupational training in a school seems to be desirable.

The Federal Survey of the Deaf and Hard of Hearing
Part IV
Occupational Success and Related Factors

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SUCCESS ACCORDING TO EMPLOYER

AS DETERMINED by the data obtained in the Federal survey, the success of the deaf and the hard of hearing, from both an occupational and general viewpoint, will be treated from several different angles: Employer estimates, employer prejudices, employee estimates, and finally, success as reflected in earnings. These factors will be shown both as relationships and as inter-relationships.

The first of the employers' estimates to be considered were the employers' reactions to the question of the prospects for promotion of their present deaf or hard-of-hearing employees. In their opinions, as shown in Table I, the prospects were excellent, fair, and nil for 8.1, 21.2, and 70.7 per cents, respectively. Women made a better showing, 10.5 per cent of their number having been rated with excellent prospects as against 7.0% of the men.

TABLE I
EMPLOYER'S ESTIMATE OF PROSPECTS FOR PROMOTION
(From Employers of 5,388 Males and 6,329 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting...	5,043	100.0	3,500	100.0	1,543	100.0
Excellent prospects	408	8.1	246	7.0	162	10.5
Fair prospects....	1,071	21.2	763	21.8	308	20.0
No prospects.....	3,564	70.7	2,491	71.2	1,073	69.5
Unemployed.....	2,566		1,836		730	
Unreported.....	71		52		19	

The figures of Table I will be used as the constant factor in five of the relationship tables that follow. It will be well to bear in mind that the employers' general reaction was that less than one third (29.3%) of their employees had any prospects for promotion and, included among these, only 8.1 per cent had excellent prospects.

Table II reveals an interesting relationship between degree of deafness in the employees and their employers' estimate of their occupational skill. From the figures it appears that deafness actually was an advantage for the men. The employers of totally deaf men said that 55.7% were succeeding very well and only 2.0% were failing, while among the hard of hearing the corresponding proportions were 48.6 and 13.4 per cents, respectively. In the sampling there were fewer hard-of-hearing men than those totally deaf, 2,231 as against 2,864; it is possible a more representative number of the hard of hearing would yield different percentages. Further, totally deaf women were excelled in employers' opinion of their occupational skill by women who are hard of hearing—56.4% as against 60.2%. For the women, too, in both cases 3.0% were failing.

Passing from skill to promotion prospects, it is seen by Table III that the advantage has shifted to the hard of hearing. Of the totally deaf men, 6.5% have excellent prospects for promotion as against 7.8% of the hard of hearing. For women the difference is much greater, the percentages being 9.4 and 13.4, respectively.

It is seen from the two foregoing tables that the employers of a given group have said in effect that the totally deaf are more skillful and more successful in their work yet have fewer prospects for promotion than the hard of hearing.

Employer Prejudices

Continuing the consideration of the utilization of skill, there is shown in Table IV the employers' estimate of skill as related to prospects for promotion, also according to employers' estimate. No distinction is made as to degree of hearing.

None of the small number of men "failing" had prospects

TABLE II

RELATION OF DEGREE OF DEAFNESS TO EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION	TOTAL EMPLOYEES		CAN UNDERSTAND LOUD SPEECH						UNREPORTED EMPLOYEES RE. DEGREE	
			Male			*Female*				
	Male	*Female*	Cannot Hear At All	Only With Ear-phone	Without Ear-phone	Cannot Hear At All	Only With Ear-phone	Without Ear-phone	*Male*	*Female*
			NUMBER DISTRIBUTION							
Total employers reporting—re. skill	5,309	2,270	2,864	214	2,231	1,009	126	1,135	4	1
Succeeding very well	2,778	1,324	1,596	98	1,084	569	72	683	2	0
Succeeding fairly well	1,743	680	899	72	772	313	38	329	1	1
Moderate (getting by)	650	200	313	37	300	97	14	89	0	0
Failing	138	66	56	7	75	30	2	34	0	0
Unreported employers—re. skill	75	21	38	3	34	7	1	13	1	0
			PER CENT DISTRIBUTION							
Total employers reporting—re. skill			100.0	100.0	100.0	100.0	100.0	100.0		
Succeeding very well			55.7	45.8	48.6	56.4	57.1	60.2		
Succeeding fairly well			31.4	33.6	34.6	31.0	30.1	29.0		
Moderate (getting by)			10.9	17.3	13.4	9.6	11.1	7.8		
Failing			2.0	3.3	13.4	3.0	1.7	3.0		

of promotion. Of women failing, 87.5 per cent had "no prospects." Adding those "getting by" does not materially alter this part of the picture. In these categories such relationships are to be expected.

But moving to the next column, of those succeeding fairly well, men and women, only one fourth had any prospects and, included among them, 1.6% had excellent prospects. Then of those succeeding very well, approximately one third had hope of advancement, with the men and women having excellent prospects in only 11.2 and 15.6 per cents of their respective numbers.

It will be recalled that Part II of this report of the Federal survey indicated that of the unemployed deaf and hard of hearing only 0.3 per cent gave "trouble with boss or foreman" as the reason for loss of position.[1]

Another aspect of this is brought out here by Table V, namely, that having once had a deaf employee the employer is apt to continue the practice, for of the 7,487 deaf or hard-of-hearing persons whose past or present employers gave information there were only 29 instances where there had been no deaf employees for the previous five years.

In the remaining cases, the number of deaf employees during the same five-year period was given. Those whose employers had only one or two were far in the majority, 4,402 of the 7,487 so reporting. For those having had three or four, the frequency dropped to 922 cases. Ensuing groups descend in a rough arithmetic progression to the 137 cases reporting nine or ten. There is then a sudden increase to 1,355 cases having had over ten deaf employees.

In this last group there were more instances where a given employer's reaction was repeated in the count, but nevertheless this odd distribution may bear out claims made that employers are unduly prejudiced against the deaf. A great number employ only one or two, some because of friendship or blood tie. Again, a great number, convinced of the capabilities of the deaf along some lines, had seen fit to employ more than ten, while those taking on numbers between these extremes were relatively few.

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[1] See ANNALS, March, 1935 (Vol. lxxx, No. 2), p. 128.

TABLE III

RELATION OF DEGREE OF DEAFNESS TO EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION	TOTAL EMPLOYEES		CAN UNDERSTAND LOUD SPEECH						UNREPORTED EMPLOYEES RE. DEGREE	
			Male			*Female*				
	Male	*Female*	Cannot Hear At All	Only With Ear-phone	Without Ear-phone	Cannot Hear At All	Only With Ear-phone	Without Ear-phone	*Male*	*Female*
			NUMBER DISTRIBUTION							
Total employers reporting—re. prospects	3,497	1,543	2,096	136	1,265	749	80	714	4	1
Excellent prospects	244	174	135	11	98	70	8	96	1	0
Fair prospects	763	315	449	28	286	165	11	139	1	0
No prospects	2,490	1,054	1,512	97	881	514	61	479	0	1
Not now employed	1,833	733	779	76	978	262	46	425	2	0
Unreported employers—re. prospects	54	15	26	5	23	5	1	9	0	0
			PER CENT DISTRIBUTION							
Total employers reporting—re. prospects			100.0	100.0	100.0	100.0	100.0	100.0		
Excellent prospects			6.5	8.1	7.8	9.4	10.0	13.4		
Fair prospects			21.4	20.6	22.6	22.0	13.7	19.5		
No prospects			72.1	71.3	69.6	68.6	76.3	67.1		

TABLE IV

RELATION OF EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION TO EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION	TOTAL EMPLOYERS		EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION								UNREPORTED EMPLOYERS RE. SKILL	
			Male				*Female*					
	Male	*Female*	Failing	Moderate (Getting By)	Succeeding Fairly Well	Succeeding Very Well	Failing	Moderate (Getting By)	Succeeding Fairly Well	Succeeding Very Well	*Male*	*Female*
			NUMBER DISTRIBUTION									
Total employers reporting—re. prospects	3,491	1,541	43	305	1,077	2,066	16	109	431	985	76	21
Excellent prospects	246	162	0	0	17	229	0	1	7	154	0	0
Fair prospects	762	308	0	48	255	459	2	12	100	194	0	0
No prospects	2,483	1,071	43	257	805	1,378	14	96	324	637	4	2
Not now employed	1,808	725	95	344	664	705	48	91	249	337	33	5
Unreported employers—re. prospects	13	5	0	1	3	9	2	0	1	2	39	14
			PER CENT DISTRIBUTION									
Total employers reporting—re. prospects			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Excellent prospects			0.0	0.0	1.6	11.2	0.0	0.9	1.6	15.6		
Fair prospects			0.0	15.7	23.7	22.1	12.5	11.0	23.2	19.7		
No prospects			100.0	84.3	74.7	66.7	87.5	88.1	75.2	64.7		

TABLE V

THE NUMBER OF DEAF OR HARD-OF-HEARING PERSONS IN THE EMPLOY OF EMPLOYER INTERVIEWED—DURING PAST FIVE YEARS

(From Employers of 5,388 Males and 6,329 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting....	7,487	100.0	5,245	100.0	2,242	100.0
No deaf employees in past 5 years...	29	0.4	17	0.3	12	0.5
One or two	4,402	58.8	3,053	58.2	1,349	60.2
Three or four...	922	12.3	656	12.5	266	11.9
Five or six.....	442	6.0	318	6.1	124	5.5
Seven or eight...	200	2.7	169	3.2	31	1.4
Nine or ten.....	137	1.8	101	2.0	36	1.6
Over ten.....	1,355	18.0	931	17.7	424	18.9
Unreported.....	193		143		50	

SUCCESS ACCORDING TO EMPLOYEE

Passing from employer estimates to self-ratings by employees, it is seen from Table VI that 60.6% of the women rated themselves as succeeding very well while only 55.1% of the men gave the same reaction. The percentages descend rapidly until there are only 3.7% of the men and 2.5% of the women rating themselves as failing.

As a group, more than half (56.9%) of the deaf and hard of hearing felt they were succeeding very well in their then or more recent positions, and one fourth (26.7%) were of the opinion that they were getting on with their work at least "fairly well."

In an evaluation of the effect of deafness upon their success in occupation, the deaf men and women were of much the same opinion. Table VII shows that slightly over one-half considered deafness of no hindrance. Three tenths of the total considered it a slight hindrance and less than one fifth thought that deafness interfered with their working efficiency.

In Table VIII the employers' ratings are subdivided according to self-ratings by employees. In the percentages the greatest values tend toward the upper right-hand corners showing a greater concurrence of self-ratings with em-

ployer ratings among those employees who were succeeding than among those failing or moderately succeeding. Of those estimated to be succeeding very well by self-ratings, 58.6% of the men and 64.4% of the women were given the same

TABLE VI

SELF-RATING OF SUCCESS IN PRESENT OR MOST RECENT POSITION
(Questionnaires Given 13,251 Males and 6,329 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting...	19,528	100.0	13,227	100.0	6,301	100.0
Succeeding very well.....	11,101	56.9	7,283	55.1	3,818	60.6
Succeeding fairly well.....	5,216	26.7	3,619	27.3	1,597	25.3
Moderate (getting by).....	2,564	13.1	1,832	13.9	732	11.6
Failing.....	647	3.3	493	3.7	154	2.5
Unreported.....	52		24		28	

rating by their employers. These are the highest percentages for the two sex groups; in no other place did employer and employee concur so fully, only 2 and 1.7 per cents for men and women, respectively, being rated by the employer as failing.

TABLE VII

ESTIMATES OF DEAF OF EFFECT OF DEAFNESS UPON SUCCESS IN WORK
(Questionnaires Given 13,251 Males and 6,329 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting....	19,544	100.0	13,227	100.0	6,317	100.0
Great hindrance.	3,543	18.1	2,390	18.1	1,153	18.2
Slight hindrance.	5,904	30.2	3,911	29.6	1,993	31.6
None at all.....	10,097	51.7	6,926	52.3	3,171	50.2
Unreported.....	36		24		12	

SUCCESS AS REFLECTED IN EARNINGS

To consider earnings as an indication of success it will be necessary to examine Tables IX and X, first the average

TABLE VIII

RELATION OF SELF RATING OF SUCCESS BY EMPLOYEE* TO EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION	TOTAL EMPLOYEES		SELF RATING OF SUCCESS BY EMPLOYEE*								UNREPORTED EMPLOYEES RE. SELF RATING	
			Male				*Female*					
	Male	*Female*	Failing	Moderate (Getting By)	Succeeding Fairly Well	Succeeding Very Well	Failing	Moderate (Getting By)	Succeeding Fairly Well	Succeeding Very Well	*Male*	*Female*
			NUMBER DISTRIBUTION									
Total employers reporting—re. skill	5,307	2,269	127	609	1,488	3,083	30	193	564	1,482	5	2
Succeeding very well	2,778	1,322	42	236	693	1,807	11	85	272	954	2	2
Succeeding fairly well	1,741	681	39	197	564	941	5	56	204	416	2	0
Moderate (getting by)	649	200	25	155	195	274	5	36	72	87	1	0
Failing	139	66	21	21	36	61	9	16	16	25	0	0
Unreported employers—re. skill	76	21	1	13	28	34	0	1	10	10	0	0
			PER CENT DISTRIBUTION									
Total employers reporting—re. skill			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Succeeding very well			33.1	38.8	46.6	58.6	36.6	44.0	48.2	64.4		
Succeeding fairly well			30.7	32.3	37.9	30.5	16.7	29.1	36.2	28.0		
Moderate (getting by)			19.7	25.5	13.1	8.9	16.7	18.6	12.8	5.9		
Failing			16.5	38.8	2.4	2.0	30.0	8.3	2.8	1.7		

* In present or most recent positi on.

weekly earnings as given by employers, and second the average weekly earnings as reported by the deaf and hard of hearing themselves. In the latter case it is possible the results were more representative since a larger number were included. The extremes of the wage scales appear less marked according to the employers' returns—only 14.6% were earning less than ten dollars per week as against 19.8% so reported by the deaf, and only 3.0% were earning fifty dollars or over per week while 5.3% of the deaf claimed such earnings.

TABLE IX

AVERAGE WEEKLY EARNINGS
FROM EMPLOYERS' QUESTIONNAIRE*
(From Employers of 5,388 Males and 2,292 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting....	7,516	100.0	5,261	100.0	2,255	100.0
Earnings—						
$50 or over.....	211	3.0	180	3.4	31	1.5
$40–49.....	332	4.4	287	5.5	45	2.0
$30–39.....	823	10.9	712	13.5	111	5.0
$20–29.....	2,019	26.8	1,672	31.8	347	15.5
$10–19.....	3,033	40.3	1,805	34.3	1,228	54.6
Less than $10...	1,098	14.6	605	11.5	493	21.9
Unreported.....	164		127		37	

* (Room, Lodging, House Rent, or Laundry Included if Given As Part Wages.)

The most significant features concerning average weekly earnings were these: According to reports by employers the largest wage-group among the deaf and hard of hearing—40.3%—fell in the $10 to $19 class; according to reports by the deaf themselves the largest group—35.3%—fell also within the same wage-class, namely $10 to $19. In each case also the next largest group was the $20 to $29 class. The two tables also reveal a sharp divergence in wage-earning classes between the men and women, the latter registering to a larger extent in the lower wage-earning brackets.

A comparison of the results of this survey with the returns for the 1920 and 1910 census, Table XI, indicates that for the men earning between $500 and $1,500 per

TABLE X

AVERAGE WEEKLY EARNINGS FROM EMPLOYEES STATEMENT*

(From Questionnaires Given 13,251 Males and 6,329 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting....	19,191	100.0	13,003	100.0	6,188	100.0
Earnings—						
$50 or over.....	1,039	5.3	929	7.1	110	1.8
$40–49.....	989	5.2	831	6.4	158	2.5
$30–39.....	2,144	11.2	1,818	14.0	326	5.3
$20–29.....	4,446	23.2	3,361	25.8	1,085	17.5
$10–19.....	6,781	35.3	4,078	31.4	2,703	43.7
Less than $10...	3,792	19.8	1,986	15.3	1,806	29.2
Unreported.....	389		248		141	

* (Room, Lodging, House Rent, or Laundry Included if Given As Part Wages.)

year there has been little material change.[2] Grouping the two middle percentages gives approximately 57% for the two dates. There were in 1934, 5% less earning under $500 which was offset by a 5% increase of those earning over $1,500.

Significant changes also occurred among the women. Of the total, those earning $1,000 or over had increased from 0.2% in 1910 to 9.1% in 1920 and to 27.2% in 1934. The

TABLE XI

COMPARISON, BY PERCENTAGE, OF EMPLOYEE RETURNS WITH 1910 AND 1920 CENSUS RETURNS

ANNUAL EARNINGS	MEN			WOMEN		
	This Survey 1934	Census		This Survey 1934	Census	
		1920	1910		1920	1910
Total.....	100.0	100.0	100.0	100.0	100.0	100.0
$1500 or over...	27.5	22.4	1.6	9.7	2.0	0.1
$1000–1500.....	25.8	30.8	4.8	17.5	7.1	0.1
$ 500–1000.....	31.4	26.7	35.4	43.7	37.9	7.0
$ 500 or less....	15.3	20.1	58.0	29.2	53.1	92.7

[2] "The Deaf-Mute Population of the United States, 1920," Bureau of the Census, p. 86.

tendency for the women to advance into the better wage-earning classes is evidenced by a striking reduction between 1910 and 1934 in the proportion of those in the lowest wage-class, namely $500 or less.

Relationship of Education and Success Factors

1. Means of Communication.—Since present-day educators of the deaf place such emphasis on language and speech work, it was felt that the tabulations of means of communication might well be placed in this section which deals with relationships between education and success factors.

It is to be borne in mind that these tables do not refer to speech ability but rather the means actually used by the employee, according to his statement, to communicate with his employer. It is reasonable to assume that some who stated "by writing" had some speech ability which was used at home or among friends, but not in the working plant because of a need for greater accuracy or because of timidity arising from a feeling by the deaf person that his speech was unnatural or his lip-reading ability none too accurate.

Table XII indicates that between men and women there was a contrasting relationship of skill in occupation and speech communication. Among the men the employers rated as succeeding very well, 53.9% of those using writing, 53.8% of those using manual methods, and 50.7% of those who use speech. For the women, however, there were for writing, manual methods, and speech, 52.4%, 56.2% and 60.8%, respectively, who were succeeding very well. This difference for the two sexes may have been brought about by differences in types of occupation, a preponderance of the women being in domestic and personal service (31.1% in 1920) calling for greater speech ability generally.

Regrouping the percentages does not alter the relationship for either sex group; however, the differences were so slight for all three means of communication and as between men and women that no particular significance can be attached to them. Especially is this true since a given employer was rating the employee as to skill in his particular occupation. However, as shown in Part III, the percentage

TABLE XII

Relation of Means of Communication with Employer* to Employers' Estimate of Skill in Occupation
(From Questionnaires Given 5,388 Males and 2,292 Females)

Employers' estimate of skill in occupation	Total employees		Means of communication*						Unreported employees re. means	
			Male			*Female*				
	Male	*Female*	By Writing	Signs Gestures Manual Alphabet	Spoken Language	By Writing	Signs Gestures Manual Alphabet	Spoken Language	*Male*	*Female*
			Number distribution							
Total employers reporting—re. skill	5,228	2,239	1,693	924	2,611	462	338	1,439	149	47
Succeeding very well	2,733	1,307	912	497	1,324	242	190	875	47	17
Succeeding fairly well	1,711	670	551	287	873	147	107	416	33	11
Moderate (getting by)	643	197	189	121	333	58	32	107	7	3
Failing	141	65	41	19	81	15	9	41	27	3
Unreported employers—re. skill	11	6	5	0	6	1	1	4	35	13
			Per cent distribution							
Total employers reporting—re. skill			100.0	100.0	100.0	100.0	100.0	100.0		
Succeeding very well			53.9	53.8	50.7	52.4	56.2	60.8		
Succeeding fairly well			32.5	31.1	33.4	31.8	31.7	29.0		
Moderate (getting by)			11.2	13.1	12.8	12.6	9.5	7.4		
Failing			2.4	2.0	3.1	3.2	2.6	2.8		

* The questionnaire read: Most usual means of communication with superior officer (employer, foreman, etc.).

TABLE XIII

RELATION OF MEANS OF COMMUNICATION WITH EMPLOYER* TO EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION	TOTAL EMPLOYEES		MEANS OF COMMUNICATION*						UNREPORTED EMPLOYEES RE. MEANS	
			Male			*Female*				
	Male	*Female*	By Writing	Signs Gestures Manual Alphabet	Spoken Language	By Writing	Signs Gestures Manual Alphabet	Spoken Language	*Male*	*Female*
			NUMBER DISTRIBUTION							
Total employers reporting—re. prospects	3,433	1,513	1,186	720	1,527	304	279	930	149	47
Excellent prospects	236	169	50	59	127	8	34	127	9	5
Fair prospects	742	305	227	163	352	64	59	182	21	10
No prospects	2,455	1,039	909	498	1,048	232	186	621	36	16
Not now employed	1,789	727	509	201	1,079	158	60	509	47	6
Unreported employers—re. prospects	17	5	4	3	10	1	0	4	36	10
			PER CENT DISTRIBUTION							
Total employers reporting—re. prospects			100.0	100.0	100.0	100.0	100.0	100.0		
Excellent prospects			4.2	8.2	8.3	2.6	12.2	13.6		
Fair prospects			19.1	22.6	23.1	21.1	21.1	19.6		
No prospects			76.7	69.2	68.6	76.3	66.7	66.8		

* The questionnaire read: Most usual means of communication with superior officer (employer, foreman, etc.)

using spoken language who were earning over $50 weekly was almost five times the percentage for either those writing or using manual methods. The conclusion then must be that a lack of speech ability does not hinder the efficiency of the totally deaf in the positions they now hold, but generally, however, it may prevent them from reaching the pay level of the hard of hearing.

Turning to Table XIII, it is seen that the necessity of writing to the superior officer proved to be a decided detriment to prospects for promotion. Only 4.2% of the men and 2.6% of the women using writing had what the employer termed excellent prospects for promotion. Of these, the greatest detriment was to the women, again showing that in their occupations they had to meet the speaking public more than did the men.

Considering further those with excellent promotion prospects, it is seen that within each sex-group there were very slight differences between the percentages for spoken language and for manual methods. Of the men, 8.3% of those using speech as compared with 8.2% of those using manual methods had excellent prospects. The corresponding percentages for the women were 13.6 and 12.2, respectively.

The men and women reporting "spoken language" probably were mainly from among the hard of hearing, and it would be expected that they had greater promotion prospects. The near approach made by the smaller number using manual methods might be accounted for by the fact that their superior officers for the most part did have an understanding of manual methods. For the deaf under such employers, a lack of speech ability need prove no deterrent to promotion insofar as they did not have to meet the speaking public, but had need for communication mostly with persons knowing signs and finger spelling. It is possible that the 924 men and 339 women of this group were largely, though not wholly, under employers who were themselves deaf, but no figures are available on this point.

2. General Education Requirements.—The employer's statement of the educational requirements for the position held by his deaf employee is shown in Table XIV. Appar-

ently only a small proportion of the deaf and hard of hearing (6.2%) were engaged in occupations which, according to their employers, demand college training. High school training was the requirement in 17.1% of the cases reported, elementary schooling for 43.0%, and for about one-third—33.7%—no educational requirements were set. It will be noted, however, the qualifications demanded of the women were more severe, 32.0% as against 19.7% being required to show either high school or college preparation.

TABLE XIV

THE EMPLOYER'S GENERAL EDUCATION REQUIREMENTS FOR POSITION (ONLY HIGHEST LEVEL REQUIRED)
(From Employers of 5,388 Males and 2,292 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting...	7,610	100.0	5,337	100.0	2,273	100.0
College requirements.....	477	6.2	269	5.0	208	9.1
High school.....	1,303	17.1	783	14.7	520	22.9
Elementary.....	3,269	43.0	2,423	45.4	846	37.2
No requirements.	2,561	33.7	1,862	34.9	699	30.8
Unreported.....	70		51		19	

Information showing the relation between highest school level attained and the employer's estimate of skill in occupation is indicated in Table XV. Here marked coincidence between degree of success in work (as judged by employers) and degree of school attainment is to be noted. That is, among the college trained deaf and hard-of-hearing persons a larger proportion (60.7% for the men and 67.8% for the women) were reported as succeeding very well than was true of those who had only high school training (52.8, men; 58.6, women), and of those who had only an elementary school training (49.9, men; 53.3, women). A reversal of this order becomes apparent with the other employer-estimate groups; for instance, 27.6% of the college men and 24.9% of the college women were succeeding only fairly well, whereas 34.4% of the men and 29.8% of the women

TABLE XV

RELATION OF HIGHEST GRADE OF SCHOOL WORK COMPLETED* TO EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION	TOTAL EMPLOYEES		HIGHEST GRADE OF SCHOOL WORK COMPLETED*								UNREPORTED EMPLOYEES RE. GRADE	
			Male				*Female*					
	Male	*Female*	Did Not Attend Schl.	Elementary	High School	College	Did Not Attend Schl.	Elementary	High School	College	*Male*	*Female*
			NUMBER DISTRIBUTION									
Total employers reporting—re. skill	5,321	2,265	37	2,748	1,996	540	7	871	977	410	21	8
Succeeding very well	2,768	1,319	16	1,370	1,054	328	4	464	573	278	12	5
Succeeding fairly well	1,736	678	14	887	686	149	0	285	291	102	8	3
Moderate (getting by)	649	200	6	387	202	54	2	97	79	22	1	0
Failing	168	68	1	104	54	9	1	25	34	8	0	0
Unreported employers—re. skill	46	19	1	32	11	2	0	9	9	1	0	0
			PER CENT DISTRIBUTION									
Total employers reporting—re. skill			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Succeeding very well			43.2	49.9	52.8	60.7	57.1	53.3	58.6	67.8		
Succeeding fairly well			37.8	32.3	34.4	27.6	0.0	32.7	29.8	24.9		
Moderate (getting by)			16.2	14.0	10.1	10.0	28.6	11.1	8.1	5.4		
Failing			2.7	3.8	2.7	1.7	14.3	2.9	3.5	1.9		

* The questionnaire read: Highest grade of school work completed or partially completed (Indicate *only* highest level attained).

with high school training were succeeding fairly well. For the next type of groups, those reported as having only *moderate* success at their work, the proportions become greater as the level of educational attainment decreases, and finally the number of those reported as failing showed a still greater tendency to increase as the educational level descended.

Table XVI, which deals with prospects for promotion, shows even more clearly the advantage of educational attainment. Roughly, for the men only one fourth of former elementary school pupils (23.8%) had either fair or excellent prospects for promotion as compared with almost one third (32.3%) of those who attended high school, and slightly more than two fifths (41.4%) of those with college training. The same general proportions were also true of the women. Restricting the comparisons to the group having "excellent prospects," it is seen that college trained men and women have nearly three times the proportion of those attaining only a grade school level, there being 14.9% of the men and 18.5% of the women who had college training as against only 4.3 and 7.9 per cents, respectively, of former grammar school pupils who were rated with excellent prospects.

3. Occupational Training.—The next two tables deal mainly with the place where occupational training was obtained. It will be recalled that of those trained, 35% secured their training in public high or trade schools and 65% in schools for the deaf.[3]

Table XVII indicates that, at least for the men, there is little to choose between schools for the hearing and schools for the deaf when considering the degree of skill derived from the trade training given by either type of school. Those trained in public high or trade schools had slightly less than one per cent more men and a 7.5% greater proportion of women in the "succeeding very well" category than the number in this class who were trained in schools for the deaf. But it is likely that this slightly better showing by graduates from schools for the hearing was due to other

[3] See ANNALS, March, 1935 (Vol. lxxx, No. 2), p. 124.

TABLE XVI

RELATION OF HIGHEST GRADE OF SCHOOL WORK COMPLETED* TO EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION	TOTAL EMPLOYEES		HIGHEST GRADE OF SCHOOL WORK COMPLETED*								UNREPORTED EMPLOYEES RE. GRADE	
			Male				*Female*					
	Male	*Female*	Did Not Attend Schl.	Elementary	High School	College	Did Not Attend Schl.	Elementary	High School	College	*Male*	*Female*
			NUMBER DISTRIBUTION									
Total employers reporting—re. prospects	3,485	1,537	21	1,716	1,333	415	4	573	641	319	21	8
Excellent prospects	254	172	1	73	118	62	0	45	68	59	2	1
Fair prospects	760	314	3	334	313	110	0	109	130	75	3	1
No prospects	2,471	1,051	17	1,309	902	243	4	419	443	185	10	5
Not now employed	1,830	732	17	1,031	667	115	3	302	336	91	6	1
Unreported employers—re. prospects	52	15	0	34	17	1	0	6	9	0	0	0
			PER CENT DISTRIBUTION									
Total employers reporting—re. prospects			100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0		
Excellent prospects			4.8	4.3	8.8	14.9	0.0	7.9	10.6	18.5		
Fair prospects			14.3	19.5	23.5	26.5	0.0	19.0	20.3	23.5		
No prospects			80.9	76.2	67.7	58.6	100.0	73.1	69.1	58.0		

* The questionnaire read: Highest grade of school work completed or partially completed (Indicate *only* highest level attained).

TABLE XVII

RELATION OF PLACE OF TRADE TRAINING TO EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF SKILL IN OCCUPATION	TOTAL EMPLOYEES		PLACE OF TRADE TRAINING						UNREPORTED EMPLOYEES RE. TRAINING	
			Male			*Female*				
	Male	*Female*	No Trade Training	Public High or Trade School	School for Deaf	No Trade Training	Public High or Trade School	School for Deaf	*Male*	*Female*
			NUMBER DISTRIBUTION							
Total employers reporting—re. skill	5,282	2,249	2,024	630	2,628	789	655	805	30	22
Succeeding very well	2,768	1,308	967	353	1,448	437	418	453	12	16
Succeeding fairly well	1,731	678	691	193	847	235	180	263	13	3
Moderate (getting by)	646	197	287	71	288	86	44	67	4	3
Failing	137	66	79	13	45	31	13	22	1	0
Unreported employers—re. skill	76	21	36	8	32	7	7	7	0	0
			PER CENT DISTRIBUTION							
Total employers reporting—re. skill			100.0	100.0	100.0	100.0	100.0	100.0		
Succeeding very well			47.8	56.0	55.1	55.4	63.8	56.3		
Succeeding fairly well			34.1	30.6	32.2	29.8	27.5	32.7		
Moderate (getting by)			14.2	11.3	11.0	10.9	6.7	8.3		
Failing			3.9	2.1	1.7	3.9	2.0	2.7		

TABLE XVIII

RELATION OF PLACE OF TRADE TRAINING TO EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION
(From Questionnaires Given 5,388 Males and 2,292 Females)

EMPLOYERS' ESTIMATE OF PROSPECTS FOR PROMOTION	TOTAL EMPLOYEES		PLACE OF TRADE TRAINING						UNREPORTED EMPLOYEES RE. TRAINING	
			Male			*Female*				
	Male	*Female*	No Trade Training	Public High or Trade School	School for Deaf	No Trade Training	Public High or Trade School	School for Deaf	*Male*	*Female*
			NUMBER DISTRIBUTION							
Total employers responding—re. prospects	3,486	1,526	1,140	398	1,948	473	448	605	30	22
Excellent prospects	245	172	67	46	132	32	77	63	1	2
Fair prospects	760	308	211	119	430	87	90	131	3	7
No prospects	2,481	1,046	862	233	1,386	354	281	411	10	9
Not now employed	1,820	729	897	234	689	317	209	203	16	4
Unreported employers—re. prospects	52	15	23	6	23	6	5	4	0	0
			PER CENT DISTRIBUTION							
Total employers reporting—re.prospects.			100.0	100.0	100.0	100.0	100.0	100.0		
Excellent prospects			5.9	11.6	6.8	6.8	17.2	10.4		
Fair prospects			18.5	29.9	21.1	18.4	20.1	21.7		
No prospects			75.6	58.5	71.1	74.8	62.7	67.9		

factors than a superiority of trade training received, namely, better hearing, better speech and more natural language attainment.

It would appear that women have less need of trade training, for of the group that received no trade training whatsoever, 55.4% of the women were rated as succeeding very well as against 47.8% of the men who had no special trade training. Further, this class as a whole had only 8.2% less succeeding very well and 1.8% more failing than those trained in either trade school or schools for the deaf, thus indicating that occupational training as now given in the latter types of schools could stand improvement since those with no training made very nearly as good a showing as those with training.

Turning to the employer's estimate of the employee's prospects for promotion—Table XVIII—it is seen that of those having had no trade training 5.9% of the men and 6.8% of the women approximated the number trained in schools for the deaf—6.8% of the men and 10.4% of the women—who were reported as having excellent prospects for promotion.

Of those trained in public high or trade schools, 11.6% of the men and 17.2% of the women were rated with excellent prospects—nearly twice as many as those from schools for the deaf. But as it was shown in the previous table that graduates of neither type had an appreciable advantage in the degree of skill, the employer likely had in mind the employee's hearing or other advantages rather than his skill when he rated the graduate of the school for the hearing with greater prospects. It has been shown in previous tables —I, II, and III—that there is little correlation between skill in occupation and prospects for promotion.

Table XIX gives the employer's statement of the trade training required for the position held. It does not give proof of the number of deaf and hard-of-hearing persons who should or should not have been given training. It shows rather the qualifications required for the positions that had actually been secured, regardless of what the employee's training might have been.

Slightly more than one half, or 54.3%, had secured positions for which no training was required; approximately three tenths, or 29.2%, were in places for which an apprentice training was the requisite; and for one sixth—16.4%—a school trade training was the requirement.

Six tenths of the women as against slightly more than one half (54.3%) of the men held positions that did not require

TABLE XIX

THE EMPLOYER'S TRADE TRAINING REQUIREMENTS FOR POSITION
(From Employers of 5,388 Males and 2,292 Females)

	TOTAL		MALE		FEMALE	
	Number	%	*Number*	%	*Number*	%
Total reporting....	7,588	100.0	5,319	100.0	2,269	100.0
No training required.....	4,117	54.3	2,752	51.7	1,365	60.1
Apprenticeship training.....	2,217	29.2	1,761	33.2	456	20.1
School trade training.....	1,244	16.4	804	15.1	440	19.4
Misc.-business training, etc...	10	0.1	2	0.0	8	0.4
Unreported.....	92		69		23	

trade training. Apprenticeship training offered greater possibilities for the men, of whom one third had positions with such requirements as against two tenths of the women. The variation in the case of school trade training was less marked, the percentages being 15.1 for the men and 19.4 for the women.

A Preliminary Strobophotoscopic Study of the Speech of the Deaf

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THIS PAPER presents a preliminary strobophotoscopic study of the speech and voice of the deaf. It aims to determine and measure the two factors of intonation, pitch and duration, in the speech of the deaf. A comparison is made between the speech of the deaf and that of their teachers and of normal hearing children of the same age. The second grade at the Ohio State School for the Deaf made available 28 deaf children who had had four years of speech training. The deaf children are referred to in this study as the "deaf," and the teachers together with hearing children, who were of the same chronological age as the deaf children, as the "normal group."

TECHNIQUE

The apparatus employed in this study was the strobophotoscope, which was conceived by Seashore and developed by Metfessel at the University of Iowa. Briefly, the strobophotoscope is an instrument on the plan of the Seashore "Tonoscope" but in addition presenting a permanent record. In this study, the subject spoke into a single-button microphone, where the speech waves were transferred into electrical waves much as in the telephone. These electrical waves were passed through an amplifier and an appropriate electrical system to a neon lamp. At the lamp the electrical waves were converted into light flashes, so that one might say that the voice waves had become light waves. These light flashes were of a frequency determined by the number of vibrations set up by the voice; that is to say, the light flash rapidity indicated the pitch of the voice which was speaking into the microphone. These light flashes were concentrated upon a revolving perforated disc, which traveled at a known and constant speed. The small perforations occurred in concentric circles parallel to the circumference of the disc. The

nearer each circle was to the center of the disc, the fewer the number of holes in that circle; and hence upon a revolving disc, the nearer the center of the disc, the fewer the number of the holes which would pass a given point during a given period of time. When the number of light flashes was equal to the number of holes which passed under the light, the optic effect was that the holes appeared to stand still, as a result of the fact that one could only see the holes when the light was burning. Since the number of light flashes was equal to the number of vibrations set up by the voice, that is to say, the voice frequency or pitch, then the number of perforations which passed a given point in one second in the row of holes which appeared to stand still was equal to the pitch of the voice which spoke into the microphone. The rows of holes were so spaced that each row was one tenth of a musical tone from the outside or inside neighboring row of holes. The circle of holes on either side of the circle which appeared to stand still seemed to be lines, or those which were the most proximal were manifested in such a way as to resemble the scurrying cellular ambulations seen under microscopic observation. The optic illusion of the moving perforations in relation to the light flashes is known as "stroboscopic effect." This is similar to the phenomenon one so often observes in the moving pictures. A typical common example of stroboscopic effect would be that if the spokes of an automobile wheel were all alike, and the wheel was turning at such a speed that in each picture frame of the cinema film the spokes were in the same relationship as in the surrounding picture frames, the wheel although moving would appear to stand still. That is to say, if there were thirty-two pictures per second taken in the film, and in each individual frame there was a spoke in exactly the perpendicular position, although the car would appear to move, the wheel would not go around. But, if the spoke did not quite reach the vertical position, while the car moved forward, the wheel would appear to turn backward; etc. In the present study, using the strobophotoscope, in order to make a permanent record of the row of holes which appeared to be moving and those that appeared to

stand still, and thus procure a record of the voice pitch intonation, bromide photograph paper was passed under the disc of holes, traveling at the same speed as the disc, so that the holes which appeared to stand still were photographed as dots and the holes which appeared to be moving photographed as lines. With this apparatus, it was only necessary to locate a dot among the lines on the photograph in order to determine the pitch of the voice. By tracing a line from dot to dot the pitch variation or speech melody was immediately demonstrated to an accuracy of one tenth of a tone.

As an additional check on the pitch, a time line was photographed. This was made by passing the edge of the same moving photograph paper simultaneously under a narrow slit which was not moving but within the range of the light flashes. Each time the light flashed, a vertical line was photographed. By merely counting the number of vertical lines on the strip of paper which passed under the light in one second, the pitch of the voice was again determined. This was of especial value in determining the octave on some of the strobophotoscopic records.

This apparatus photographed only the voiced sounds, not the whispered consonants. In this way it showed only the pitch of the vocal lips, which of course is what is meant by the intonation pitch or speech melody. Since this was the case, it was also possible to study the duration of each voicing period and to compare this with the total duration of the sentence.

Ten sentences were used in the study. This list was read after a period of practice into the microphone by the deaf and normal groups. The sentences which were selected by Superintendent E. R. Abernathy of the Ohio School, were:

1. Good morning.
2. How are you?
3. I am well, thank you.
4. How old are you?
5. I am ten years old.
6. Where is your mother?
7. She is at home.
8. Are you going home?
9. No, I am going to school.
10. Goodbye.

These sentences were not only recorded strobophotographically for each subject but also, by means of a second

microphone beside that of the strobophotoscope, they were simultaneously recorded phonographically on wax cylinders not only as an additional check on the pitch but also to determine the errors in speaking the sentences. For example, some would make a mispronunciation, then hesitate and return to the beginning of the sentence and start over again; others would repeat or correct a word within the sentence. These sentences were dealt with or thrown out according to the damage the intonation incurred.

In order to determine the end of the sentences on the strobophotoscope record, the reader would hesitate at the end of each sentence so that an assistant could make a sentence end impression on the film by pushing an electric button. The button turned on and extinguished a two and one-half volt lamp which was in a compartment near the edge of the film and which was entirely light proof except on the side toward the film. The wax record also acted as a check on this sentence marker.

These experiments were carried out in the Phonetics Laboratories of Ohio State University. They owe much to the University of Iowa for the duplication of their strobophotoscope for the use of the laboratories at Ohio State University. The writer wishes to thank Superintendent Abernathy, of the Ohio State School for the Deaf, for his kindnesses which made the study possible and Principal R. F. Nilson who gave splendid co-operation, and also the teachers who not only accompanied the children to the Phonetics Laboratories but also helped greatly in the actual making of the records. The writer wishes also to express his appreciation of the fine assistance given him by Prof. G. Oscar Russell and Mr. Ralph H. Waltz of the Phonetics Laboratories at Ohio State University.

In the conclusions each case is numbered the same throughout so that one can follow each individual child or normal case and perceive personal characteristics.

Pitch

Some who have had the opportunity of hearing some of the so-called typical hollow or shrill deaf voices have been

led to believe that the deaf have no pitch change and are unable to vary their voices in pitch intonation. This paper, first of all, dispels that fear and proves conclusively that the deaf voice does change as rapidly and over as great a range as a normal person's voice.

The maximum pitch fall in one phonation was about the same for both normals and deaf. The maximum for the deaf was nine semitones as compared with eleven semitones for the normals.

Table I shows the average for all sentences for the maximum pitch variation for each sentence by subject for the normals. Table II shows the same information for the deaf. It will be noted that the least variation among the normals was 3.8 semitones, and also that only one fifth of the deaf go above that. That is to say, 80 per cent of the deaf have less average pitch change than the normals. The widest span for the deaf was 6.6 semitones in comparison with a maximum of 8.6 for the normals. The least change was not zero for the deaf, which of course would be humanly impossible, but .9 semitones. This demonstrates clearly that each subject makes use of some pitch change and that in 53 per cent of the cases this change is above 3 semitones which is closely comparable to that of the normals.

Table III gives the average for the maximum pitch change of all cases for each of the ten sentences for both the normal group and the deaf. The deaf show little more than half as great an average maximum pitch variation as do the normals on the same sentences.

Considerable use has been made of the strobophotoscope at the University of Iowa in the study of the vibrato as an element of good voice quality. However, in this study, no vibrato was found in the speech of the deaf subjects.

Table IV gives detailed information on the intonation on each sentence for both groups of subjects. We have no standards for intonation except hypothetical statements in general textbooks. It is quite interesting to see how the normal children and the teachers treat the sentences. Most textbooks say that a question should end with a rising voice and a statement with a falling intonation. Sentences one,

three, five, seven, nine and ten are statements. On sentence one, only one normal ended with a falling intonation, the rest finished with level intonations. In sentence three, one third ended with a falling intonation, and one sixth with a rising intonation. In sentence five, all used falling intonations. In sentence seven, only two thirds used falling. In sentences nine and ten, all used falling intonations. That is to say, in less than half of the statements, all normal speakers used falling intonations at the end of the sentences, and in the rest of the cases they used other types of pitch changes. Sentences two, four, six and eight are questions. Again, most of the textbooks say that the voice should rise on all questions. However, in this study, the normals did not consistently raise their voices on any one question. On question two, five sixths lowered their voices at the end; on question four, one half; on question six, 100 per cent; and on question eight, one third. On questions two and six, not one raised the voice at the end, and on question four, only one raised the voice, but on question eight, two thirds followed the textbook rule and raised their voice. As a result, it must be concluded that the textbook rules for intonation are all too simple, since these were not only normal speakers but it was agreed by all who heard them that there was meaning portrayed in their enunciation. It is not known what is normal intonation and there is little with which to compare the deaf or to teach the deaf to imitate.

At the beginning of the sentences, the deaf tend to have level intonations most frequently, at the end falling. The normals, as a group, tend to agree with one another in regard to the direction of the initial pitch change, but disagree in regard to the final patterns. Both the normal and the deaf groups have more falling than rising pitch changes, as is shown in Table IV. The tendency of the deaf to use a level initial pitch pattern does not seem to be normal. However, the proclivity of the deaf to use a falling intonation at the end of all sentences seems to approach the normal usage.

The nearest objective approach to the measure of the voice key was the average pitch of the voice on all sentences. This, of course, is not the key as usually defined, but merely a

mathematical average of the compass of pitches covered in speaking ten sentences. It was found that the average pitch of the deaf voice was identical with that of the average normal voice, but the deaf voices tend to vary between subjects two thirds more than found to be the case in the normal group.

Several of the deaf demonstrated propensities toward perseverated pitch patterns. For example, each phonation would start with a rising pitch and end with a falling pitch. The amount of rise and the amount of fall would in each example be nearly identical. The rate of pitch change would be quite similar. The normals did not demonstrate this propensity.

Duration

The second factor of intonation to be treated was duration. Duration, in this study, refers to the length of the phonation continuums which will be called the phonation duration; second, to the interval between phonations; and third, to the extent of time from the initiation of the first phonation throughout the sentence to the cessation of the voice on the final phonation. This last will be called the sentence duration. However, it must be remembered, when using this term, that the strobophotoscope is incapable of recording the breathed consonants. For example, the sentences which were initiated with unvoiced consonants (*viz.*, *wh*, *h* and *sh*) would most probably have been slightly longer had other recording equipment been utilized. This fact is mentioned here lest this use of the nomenclature prove misleading. The inadequacies of the apparatus make this procedure the nearest approach to the true sentence duration; nevertheless, it coincides closely enough to be eminently satisfactory in the following comparisons of the deaf and normal voices. The factors to be considered in the second, or what from the point of view of the record itself might be called the spaces between phonations, are not only a condition of non-utterance together with the whispered elements and combinations, but also voice which was too weak or too breathy to record as a phonation.

The deaf showed several cases in which the interval from

one phonation to the next was between 1.0 and 2.1 seconds. The greatest interval to be found between phonations in the normal group was a rare one half second. The deaf constantly broke their syllables into parts, often making breath groups of one syllable.

Table V shows the maximum and minimum phonation continuum extent for both deaf and normal groups. The maximum phonation for the deaf group was four and one half times greater than for the normal group. The minimum lengths were equal. The deaf in 75 per cent of the cases on some sentences to as great as 100 per cent on others have a longer sentence duration than the slowest normal. The fact that some of the sentences of the deaf were most short might be accounted for by the proclivity many had of permitting their speech to weaken to voicelessness after the first phonation or phonations at the beginning of the sentence. There were only three instances out of 60 cases where a normal spent more of the sentence duration between phonations, but there were dozens of such instances to be found in the records of the deaf group.

Tables VI through XV compare the sentence duration with the phonation duration for each case on each sentence and present opportunity for the contrasting of the deaf and normal groups for each sentence. The individual cases are numbered identically throughout all these tables.

Table XVI compares the deaf and normal groups in regard to the mean and average duration of each sentence.

Table XVII compares the deaf and normal groups in regard to the mean and average duration of the combination of all phonations in each sentence.

In 60 per cent of the sentences, the sentence duration of the deaf was more than 400 per cent greater than normal, and in no case does it show an increase in time of less than 258 per cent. From sentence one through ten, the respective percentages of increase of the sentence durations of the deaf over those of the normal are 442, 258, 408, 426, 368, 478, 439, 340, 426 and 380. Thus, the average increase in sentence duration used by the deaf over that used by the normals was 396.5 per cent.

The deaf used on the average only 25 per cent less phonation per sentence than the normals when the sentence durations were weighted as the same length and compared.

In 30 per cent of the sentences, the deaf phonation duration was more than 300 per cent greater than the normal, in 90 per cent it was more than 200 per cent greater, and in no case did the deaf show an increase in composite phonation time over the normals of less than 196 per cent. From sentence one through ten, the respective percentages of increase in the phonation duration of the deaf over that of the normals were 395, 196, 287, 291, 230, 369, 311, 248, 249 and 251. Thus, the average increase in phonation duration used by the deaf over that used by the normals was 300 per cent.

Tabular Data

TABLE I

Average Maximum Pitch Variation by Subject
(Normal)

Case	*Semitones*	*Case*	*Semitones*
1.	3.85	4.	4.00
2.	4.95	5.	4.30
3.	5.70	6.	8.65

TABLE II

Average Maximum Pitch Variation by Subject
(Deaf)

Case	*Semitones*	*Case*	*Semitones*
7.	3.75	21.	3.95
8.	2.00	22.	1.15
9.	3.15	23.	2.55
10.	2.65	24.	2.33
11.	4.25	25.	1.20
12.	3.30	26.	.90
13.	1.75	27.	3.65
14.	2.15	28.	6.62
15.	2.60	29.	3.15
16.	1.65	30.	4.10
17.	2.25	31.	3.20
18.	1.35	32.	4.00
19.	3.30	33.	6.33
20.	3.10	34.	3.00

TABLE III

AVERAGE MAXIMUM PITCH VARIATION BY SENTENCES

NORMAL		DEAF	
Sentence	*Semitones*	*Sentence*	*Semitones*
1.	4.17	1.	2.74
2.	3.84	2.	2.26
3.	5.60	3.	3.14
4.	2.25	4.	3.24
5.	5.60	5.	3.91
6.	6.60	6.	3.89
7.	4.33	7.	2.81
8.	5.00	8.	2.70
9.	7.17	9.	3.40
10.	4.91	10.	2.31

TABLE IV

TYPES OF INITIAL AND FINAL PITCH INTONATIONS AND TOTAL NUMBER OF RISING AND FALLING PITCH INTONATIONS FOR ALL SUBJECTS

Sentence	*Initial Pitch Intonation*			*Final Pitch Intonation*			*Total Number of Rising Pitch Intonations per Sentence*	*Total Number of Falling Pitch Intonations per Sentence*
	Rising	Falling	Level	Rising	Falling	Level		
				NORMAL				
1.	3	0	3	0	1	5	4	3
2.	3	2	1	0	5	1	6	12
3.	6	0	0	1	2	3	10	7
4.	4	1	1	1	3	2	6	8
5.	4	0	2	0	6	0	9	9
6.	4	2	0	0	6	0	11	16
7.	1	2	3	0	4	2	1	12
8.	3	0	3	4	2	0	12	9
9.	4	2	0	0	6	0	9	17
10.	4	0	2	0	6	0	6	6
				DEAF				
1.	10	6	11	2	11	14	29	34
2.	6	6	16	4	14	11	33	37
3.	10	5	12	4	15	7	51	61
4.	6	9	12	1	14	13	44	58
5.	15	6	8	3	14	10	53	76
6.	8	11	10	3	16	9	56	88
7.	9	6	9	3	11	12	39	37
8.	8	8	9	3	14	8	33	59
9.	6	6	13	3	14	8	48	79
10.	6	7	11	4	17	3	18	35

NOTE: In the figures for the deaf the total numbers do not check exactly for the reason that some subjects omitted some sentences.

TABLE V

MAXIMUM AND MINIMUM PHONATION TIME FOR NORMAL AND DEAF SUBJECTS

Subjects	*Single Phonation Length*	
	Maximum	*Minimum*
Normal	.4 sec.	.025 sec.
Deaf	1.8 sec.	.025 sec.

TABLE VI

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE ONE
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
1.	1.5	0.5	7.	3	3	22.	15	8
2.	2	2	8.	3	2	21.	15	7
3.	3	2	9.	5	3	24.	17	8
4.	4	2	10.	5	3	23.	17	7
5.	4	3	12.	6	6	25.	19	7
6.	5.5	3	11.	6	4	26.	21	9.5
			13.	7.5	4.5	27.	22	18
			14.	8	5	28.	24	16
			15.	9	6	30.	25	13
			16.	12	5	29.	25	12
			17.	13	3	31.	27	20
			18.	13	5	32.	28	15
			19.	15	8	33.	30	8
			20.	15	8			

TABLE VII

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE TWO
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
1.	4	4	11.	6	6	24.	16	12
3.	4	4	9.	8	7	10.	16	11
2.	5	4	19.	8	6	20.	16	9
4.	5	3	21.	8	3	30.	16	8
5.	6.5	5.5	23.	9	6	34.	16	6
6.	13	10	18.	10	9	25.	16	5
			29.	12	9	28.	19	17
			16.	13	8	12.	20	15
			22.	13	8	27.	22	19
			8.	13	7	7.	23	13
			17.	13	6.5	32.	30	19
			13.	14	4.5	15.	31	6
			26.	15	8	31.	32	26
			14.	15	7	33.	33	15

TABLE VIII

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE THREE
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	4	2	9.	13	9	28.	32	12
6.	6	4	11.	13	8	34.	34	18
3.	6	4	13.	20	11	33.	35	18
5.	9	6.5	8.	20	7	25.	35	9
2.	9.5	5.75	16.	21	8	31.	36	17
1.	13.5	7	23.	21	5.7	30.	38	14
			29.	22	11	7.	39	12
			12.	22	19	27.	41	23
			28.	26	14	24.	41	14
			22.	27	9	21.	42	15
			14.	27.5	12	10.	43	12
			26.	30	14	20.	49	24
			19.	32	15	15.	61	23
			17.	32	12	32.	63	25

TABLE IX

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE FOUR
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	3	2	11.	14.5	10	24.	26	15
6.	5	5	13.	17	10	20.	27	17
5.	5	3.5	27.	18.5	15	34.	28	12
3.	7	5	21.	19	13	12.	28	10
2.	9	6.7	16.	19	8	7.	29	17
1.	10	6.5	14.	20.5	11.5	18.	32	18
			29.	21	14	22.	33	13
			26.	22	13	25.	34	8
			8.	22	11	28.	37	22
			33.	24	17	30.	39	16
			15.	24	12	31.	40	28
			19.	25	19	9.	47	13
			17.	25	7	10.	52	23
			23.	25	6			

TABLE X

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE FIVE
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	8	4	9.	14	8	27.	36	19
2.	8.5	5	11.	16	9	24.	37	15
3.	9	7	29.	18	10	18.	39	18
6.	10	7	8.	21	12	21.	40	18
1.	11	7.5	28.	23	19	19.	40	18
5.	12	8.2	20.	23	12	7.	40	12
			14.	24	20	25.	43	13
			10.	25	11	22.	43	8
			17.	29	13	30.	44	21
			24.	30.5	12.5	23.	45	7
			13.	31	13	31.	56	37
			33.	33	18	15.	58	24
			26.	34	16	32.	70	21
			16.	35	11			

TABLE XI

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE SIX
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	5.5	3.5	9.	17	10	20.	35	23
2.	7	5	33.	20	11	25.	35	23
6.	7	4.5	29.	22	17	19.	36	15
1.	7.5	4.5	14.	25	7	27.	37	27
5.	8	6.5	11.	27	14	18.	37	23
3.	8	4	26.	27	13	16.	38	17
			7.	29	15	17.	39	19
			34.	29	13	13.	39	18
			10.	30	16	12.	40	12
			23.	31	14	31.	43	28
			22.	32	16	24.	43	14
			21.	34	21	28.	46	27
			8.	34	13	30.	46	23
			32.	34	8	15.	47	17

TABLE XII

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE SEVEN
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
3.	4.7	3	9.	8	6	29.	28	10
6.	5	3.5	11.	10	6	7.	30	13
4.	5	3	26.	13	8	31.	31	20
5.	5	3	15.	13	6	30.	31	13
2.	6	3.5	23.	18	9	10.	31	13
1.	7	6	18.	19	16	16.	31	11
			14.	19	6	22.	32	7
			34.	20	8	25.	33	10
			21.	21	12	12.	34	8
			20.	24	13	8.	35	19
			17.	26	14	32.	36	6
			27.	28	15	28.	38	22
			33.	28	11			
			19.	28	10			

TABLE XIII

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE EIGHT
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	7	4	19.	9	6	29.	31	16
1.	7	4	11.	14	8	12.	32	12
2.	9	6	9.	14	6	25.	32	11
5.	9	5.5	14.	15	7	15.	32	6
3.	9	5	17.	15	6	18.	34	17
6.	10	6	28.	23	16	7.	37	18
			26.	23	10	31.	39	21
			34.	23	7	30.	40	20
			33.	27	12	27.	40	16
			16.	28	12	24.	40	15
			10.	29	15	21.	41	14
			23.	29	9	20.	44	21
			22.	30	7	32.	57	15

TABLE XIV

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE NINE
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
4.	9	6	11.	9	7	22.	51	11
3.	11	8	9.	27	15	23.	54	13
2.	11	4	33.	28	12	25.	54	12
1.	11.5	6.5	28.	35	26	18.	55	29
6.	13	9	26.	35	18	21.	55	26
5.	14	8.7	16.	35	16	19.	56	13
			10.	41	16	30.	57	18
			34.	41	12	12.	57	13
			20.	45	24	7.	59	22
			14.	46	19	24.	60	11
			15.	46	8	31.	73	39
			29.	48	22	32.	80	18
			27.	51	13			

TABLE XV

COMPARISON OF SENTENCE AND PHONATION DURATION FOR DEAF AND NORMAL SUBJECTS FOR SENTENCE TEN
(in tenth seconds)

NORMAL			DEAF					
Case	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*	*Case*	*Sentence Duration*	*Phonation Duration*
1.	3	3	15.	3	3	18.	13	9
2.	3	3	25.	4	4	10.	13	7
3.	3	3	11.	5	4.5	19.	14	8
4.	4	3.5	9.	6	5	21.	15	11
5.	4	3.5	14.	8	5	30.	15	8
6.	4	3	29.	9	7	23.	15	6
			34.	9	6	24.	17	12
			20.	11	9	16.	17	7
			26.	11	7	28.	19	15
			7.	12	7	31.	23	19
			27.	12	6	22.	24	6
			12.	12	2	32.	33	14

TABLE XVI

COMPARISON OF SENTENCE DURATION BY GROUPS
(in tenth seconds)

Sentence	*Mean*		*Average*	
	Normal	*Deaf*	*Normal*	*Deaf*
1.	3.5	13	3.3	14.6
2.	5	15.5	6.2	16.1
3.	7.5	32	8	32.7
4.	6	25	6.5	27.7
5.	9.5	35	9.5	35
6.	7.2	34.5	7.1	34
7.	5	28	5.8	25.5
8.	9	30.5	8.5	29.9
9.	11.2	51	11.5	49.1
10.	3.5	12.5	3.5	13.3

TABLE XVII

COMPARISON OF PHONATION DURATION BY GROUPS
(in tenth seconds)

Sentence	*Mean*		*Average*	
	Normal	*Deaf*	*Normal*	*Deaf*
1.	2	7	2	7.9
2.	4	8.5	5	9.8
3.	4.8	13	4.8	13.8
4.	5	13	4.8	14
5.	7	13	6.5	15
6.	4.5	16	4.6	17
7.	3.2	10.5	3.6	11.2
8.	5.2	12	5	12.4
9.	7.2	16	7	17.3
10.	3	7	3.1	7.8

SUMMARY AND CONCLUSIONS

1. The deaf are capable of pitch variation.
2. This pitch variation can be as rapid as in normal voices.
3. This pitch variation can be as extensive as in normal voices.
4. There was no vibrato found in the voices of the deaf.
5. The maximum pitch fall for the deaf and the normals was practically equal.
6. The maximum pitch change in one phonation for the normals was eleven semitones in comparison with nine semitones for the deaf.

7. Eighty per cent of the deaf had less average maximum pitch change than the normals.
8. The greatest average maximum pitch change for the deaf was 6.6 semitones; for the normals, 8.6 semitones The minimum for the deaf was .9 semitones.
9. The deaf showed little more than half as great an average maximum pitch variation as did the normals on the same sentences.
10. Fifty-three per cent of the deaf had an average maximum pitch change above three semitones which was closely comparable to the normal change.
11. The initial pitch intonation of the deaf was usually level, that of the normal usually rising.
12. Both deaf and normals usually dropped their voices at the end of both questions and statements.
13. Both deaf and normals had more falling pitch intonations per sentence than rising ones.
14. The average pitch of the voice of the deaf was the same as that of the voice of the normals.
15. The key of the voice of the deaf varied over two-thirds as many semitones as did the voice of the normals.
16. Several of the records of the deaf showed a tendency toward perseverated pitch patterns; in other words, they used pitch intonation, but they did not use it to render a meaning to the sentence.
17. The deaf presented several cases in which the interval from one phonation to the next was between 1.0 and 2.1 seconds. The greatest similar interval to be found in the normal group was a rare one-half second.
18. The maximum phonation duration for the deaf was 1.8 seconds in comparison with .4 seconds for the normals.
19. Many times the intervals between phonations were greater than the phonations themselves in the sentences as spoken by the deaf group.
20. The deaf took almost four times as long to say a sentence on the average as did the normals.
21. The deaf used three times as much phonation to say a sentence on the average as the normals.

A Method of Using the Gault-Teletactor To Teach Speech Rhythms

By RAYMOND CARHART, M.A.

[The following statement by a student of mine, Mr. Carhart, is based upon his own experience alone. He is a graduate of the School of Speech in Northwestern University. He is dealing here, I believe, with a method that is destined to play a very important rôle in developing a smooth flow of inflected speech in the deaf. While Mr. Carhart is working with but two pupils simultaneously, his method can be employed, at the same time, with a considerable group.—ROBERT H. GAULT, Department of Psychology, Northwestern University, Evanston, Ill.]

I AM SETTING DOWN a very brief statement of the manner in which I am using the Gault-Teletactor[1] in Dr. Gault's laboratory to improve the speech of two deaf girls, 16 and 18 years of age.

The girls are reading, in connection with this work, "One Hundred Best Known Fairy Tales."[2] The stories in this book are short résumés of the better known fairy tales of the English language. They are especially adapted for this work because of their simplicity and because of their brevity, which make it possible to complete several in the course of one recitation. Besides the book just mentioned, suitable material of several kinds—poetry, prose, short stories and the like—is selected from various sources.

The girls work with the Teletactor five hours a week. This time is given entirely to improving their concepts of speech rhythm and in aiding them to adopt more socially satisfying rhythms in their own speech. A portion of every hour is spent in informal conversation with the instructor. During this period the girls keep their fingers on the Teletactor, thus obtaining a check between their own speech rhythms during social conversation and those of the instructor.

At first, one finds it difficult to follow rhythms in this manner. We so rarely have to discriminate differentially the

[1] For a description of the Gault-Teletactor see "Some Results from the Use of the Gault-Teletactor," D. T. Cloud, ANNALS, Vol. LXXVIII, No. 3. (May, 1933), pp. 200-203.

[2] Racine, Wisconsin; Whitman Publishing Co., 1933.

vibrational stimuli encountered in everyday life. In order to develop in the girls the ability to follow the vibro-tactile rhythms, the instructor reads into the Teletactor microphone while the girls follow the reading visually in other copies of the book being used. An ideal book for this purpose is the one mentioned above. It is quite easy by using it to maintain the pupils' interest.

At first the instructor stops here or there only to make certain that the girls know the place. For example, the instructor reads, "One night Jack dug a pit twenty feet long, twenty feet wide and twenty feet deep. Then he covered it all over with sticks and strewed the sticks with earth. (Stop here and ask the pupils to tell how far the instructor has read.) Early in the morning, he blew a terrific blast on his horn. . . . " At first all stops should be made at the end of a sentence. It is amazing how quickly the pupils will learn to follow perfectly. When they have learned to do this, the instructor stops at various points throughout the sentence. This insures against the pupils' merely becoming skillful guessors as to where the instructor is likely to stop. Such exercises are useful if only to acquaint the pupil with the instructor's tempo of speech.

When the pupils have learned to follow the instructor's reading easily, they are ready for the next step. This consists in determining at which points within each sentence the instructor *pauses*. For instance, the instructor reads, "The next day,/ (the sign, /, here and later indicates a pause) however,/ when the princess was sitting at the table with the King/ she heard a strange noise on the marble steps outside/ and a voice cried: 'Lovely princess,/ open the door to me'/." At first the pupil is asked to point out only the longer pauses such as those following "however", "cried" and, possibly, "outside". When this is mastered, the pupil picks out the shorter pauses as well. Finally, the pupil is asked to pick out all pauses in a given sentence and to designate which is long and which short.

The pupil is next asked to pick out the stressed words or phrases in a given sentence. For example, the sentence,

"Jack *foolishly* traded his mother's *cow* for a *capful* of beans" is read. The technique is the same as that used in pauses. First only the main stress is picked out. Then the words receiving minor stresses are noted. Finally, the relative stresses of the important words of the sentence are reported.

As the pupils learn to discriminate pauses, they automatically learn to discriminate phrasing as well. However, it is wise to put a little special emphasis on phrasing, asking the pupils to pick out the various phrases comprising the sentence. While doing this one has an admirable opportunity to drive home the concept that in ordinary conversation the spoken unit is more often a phrase than an individual word or syllable.

Some work can be done in training the pupils to appreciate pitch changes during speech. Take the following sentence: "Are you going home?" Here a rising inflection is used at the end of the sentence. This is pointed out to the pupils and enough training given them with similar sentences so that they recognize rising and falling inflections through the Teletactor vibrations. The pupils are now asked to notice the inflections as the instructor reads from a book. They are asked to distinguish the inflections at the end of each sentence. In time all inflections in the sentence may be asked for.

There are two methods used to aid the pupils to incorporate into their own speech the various elements they have learned to distinguish. First, the instructor reads slowly into the Teletactor microphone while the pupils attempt to follow orally his reading, using as a check the vibrations reaching their fingers. Second, each pupil reads aloud into the Teletactor system and checks on that reading by feeling the vibrations produced.

With the Teletactor, one may point out to the deaf the varying ways of stressing within a single sentence and thus changing its meaning. For instance, one speaks into the microphone the following sentences. "*John,* please close the door." "John, *please* close the door." "John, please *close*

the door.'' ''John, please close the *door.*'' These are spoken a number of times in various sequences, and the pupils are asked to reproduce the sentence in its various forms.

The Teletactor aids in developing concepts of poetic rhythm. Various stanzas of the same poem may be read by the instructor. The characteristic rhythm may then be reproduced with meaningless sounds. For example,

THE SNOW

It sifts from leaden sieves,
It powders all the wood,
It fills with alabaster wool
The wrinkles of the road.

On stump and stack and stem,—
The summer's empty room,
Acres of seams where harvests were,
Recordless, but for them.

—*Emily Dickinson.*

da	da:	da	da:	da	da:	
da	da:	da	da:	da	da:	
da	da:	da	da:	da	da:	da da:
da	da:	da	da:	da	da:	

The pupils are then asked to reproduce the rhythm and to read the poem. They check themselves on the accuracy of their reproductions.

On the basis of the use of the Teletactor as a teaching device made by the writer, several observations may be made. The Teletactor is an important aid to teaching rhythmic patterns, stresses and inflections to the deaf. It is astonishing how adequately pupils learn to detect them. In its use the instructor has at his command a means for enlarging the uses of the vibro-tactile senses to the end of developing the pattern or melody of speech which hearing persons acquire as a result of auditory stimulation.

Enriching the Vocabulary

By MARGARET C. LETZTER, A.B.
American Institute for the Deaf-Blind
Northwestern University, Evanston, Ill.

[The author of the following is a graduate of the School of Speech in Northwestern University. Miss Letzter has had a wide experience in corrective speech since her graduation, both in the University Speech Clinic and outside of it. Moreover, she has taught the principles involved in speech production during several years. During the last two years Miss Letzter, in my laboratory, has been adapting the principles and practices in vogue in the University Clinic to the speech problems of the deaf.—Robert H. Gault, Ph.D., Professor of Psychology, Northwestern University.]

ONE OF THE most obvious characteristics of the speech of the congenitally deaf and of those who become deaf in early childhood is the poverty of its expression. The same word, the same phrase is made to serve in many situations. The word "beautiful" or "wonderful," for instance, does duty on almost every occasion where it is desired to indicate loveliness or excellence. The explanation is only too apparent—the many avenues for enriching the vocabulary are closed to these individuals. Supplying them with even a meager means of expression is a long, difficult task; their contacts are comparatively few and usually with the same people; the variety of expression to which the hearing person is constantly exposed through his association with persons of widely differing personalities and backgrounds is denied them; their handicap makes them, as a group, retiring in nature and, consequently, the spirit of investigation and the curiosity of the normal individual which bring such rich rewards fail in a large measure to make their contribution. For the most part the conversations held with the deaf are of a very simple sort to facilitate understanding, and frequently are of a stilted form. The informal "don't," "can't," "I'm," "we're," "let's," "he's," "they've" are noticeably absent, due doubtless to the theory that they may be more difficult to lip-read or may be confusing in their shortened form. (The contrary has been found in our experience—these shortened forms are readily acquired, easily used, and not at all difficult to lip-read.)

In addition, and what seems to be even more serious, is the fact that these handicapped individuals do *very little reading,* thus leaving unexplored the one source which more than any other would aid in overcoming their lack. Inspiring a desire to read and creating a love for it should come as early as possible though it can never come too late.

Enriching the vocabulary at every opportunity and thus increasing the power of expression are quite as important as teaching the deaf to say their words correctly. Indeed, normal speech is the adequate expression of ideas and the necessary tools for such expression are words. On the other hand, the meanings in the symbols or words give birth to ideas. The expression of an idea in a *complete sentence* was our goal.

During the past year, in the laboratory of Dr. Robert H. Gault at Northwestern University, working with two girls, 16 and 18 years of age, an attempt was made to overcome an inability to express thoughts adequately and variedly by introducing new words, new expressions, different ways of saying the same thing with the vocabulary already at their command, new concepts, and new ideas. Reading as extensively as possible was definitely an important part of the program. The means used were varied and can be given here only in suggestive outline. The idea is not a new one but it offers material and a method which will bring results and which lends itself readily to adaptation for all ages, all levels of intelligence, and for the varied interests of the pupils and the objectives to be served.

In addition, the procedure furnishes excellent opportunity for the necessary practice on pronunciation and is far more interesting than the ordinary "drill" work. The practice is highly motivated, there is aroused interest, added pleasure for all concerned, and a worth-while contribution to the enrichment of the individual's background and life. The subjects selected for discussion may readily be correlated with the academic work in progress and thus serve an additional purpose. Frequently in academic work there is not time to "detour" into some of the interesting phases of the subject.

1. Giving, pointing out, and asking for *synonyms* and

equivalent expressions formed a regular part of the daily program, the words discussed usually coming from some experience of the hour or day though special lessons were devoted to this type of work. An attempt was made to explain slight differences in the use of words, differences in preposition or construction that followed certain words, etc.

The following lists are suggestive:

a. umbrella, parasol, sunshade, awnings were mentioned in this connection;
b. walk, stroll, saunter, wander, strut, ramble, amble along;
c. talk, speak, chat, converse, hold a conversation, gossip;
d. spry, active, lively, nimble, quick, alert (physically and mentally), etc.;
e. watch, look at, survey, view, inspect, examine, etc.;
f. lovely, beautiful, handsome, wonderful, attractive, exquisite, colorful, good looking, becoming, etc., etc. (Much attention was given to the different ways of complimenting people on appearance, modish, stylish, old fashioned, etc.)
g. rough looking, untidy, unkempt, coarse, shaggy, slovenly dressed; (This list is the result of an attempt by one of the young women to describe some men who came to the door of a summer home, in which "terrible" was used some eight or ten times in a description of the incident.)

2. *Opposites* and expressions which gave the opposite idea were stressed. Not only were the two single words given, such as *thin* and *thick,* but *stout* and *slim* or *thin,* were added, the latter group leading to a discussion of diet, meals, foods, etc. *Short* and *tall* gave the following list for consideration—small, little, dwarfed, diminutive, minute, tiny, undersized, as well as large, high, big, giant-like and others that could be mentioned. (Undersized, underdeveloped gave opportunity again to stress "diet"—thus helping to establish the new word.) Opposites in adverbs were also included as well as verbs with opposite meanings; ascend, descend, win, lose, fail, succeed—with their corresponding noun forms.

3. A few of the more common *prefixes* were explained and were pointed out in the reading: (lists of such words were brought in by the young women) *un*—negating the idea:

paid and unpaid; kind and unkind; attractive and unattractive; *inter*—interlace, intertwine, interweave, interbreed, interlock, interchange; *re*—retell, replace, readdress, rebuild, reheat, etc.

4. *Comparison of adjectives and adverbs*—(this was correlated with grammar work.) The emphasis was on the *idea* in the comparison—the ability to express a different *degree* by means of it. (Degree and comparison explained, of course.) The more common irregular comparisons were presented and were put into sentences by the pupils.

5. Special attention was called to *pairs of words* which are frequently if not usually found together:

now and then	high and dry	poor but proud
in and out	stars and stripes	by and by
up and down	day after day	

Others were pointed out as we happened upon them, either in conversation or reading.

6. Words with *different or double meanings and uses as* noun and verb, etc., were listed and explained:

bright light; bright pupil; bright idea;
light touch; electric light; (all kinds of lights were here included.)
branch: as verb and noun. (Here the similarity of idea was pointed out.)

7. The following subjects were made the *topic of special discussions,* suggested by incidents that came up in the course of the daily life:

a. *Colors* and shades and their combinations; "families" of colors: red, pink, rose; purple, orchid, lilac, lavender; it was pointed out how certain objects get their names from their color—an orange, the garden pinks; and on the other hand how certain colors or color names come from the object.
b. The most common kinds of *flowers* were named and described; (pictures presented) gardens, garden-spots, garden-plots, garden arrangements, etc., were included;
c. *Birds*—habits, eggs, the young, nests, location, flight, etc., were touched upon. It was explained that each bird had a different note and could be distinguished without being seen. Bird feathers as hat decorations

were mentioned and other interesting facts about them, and some stories of birds were presented.

d. Different kinds of *trees,* and the various parts of a tree were named—roots, trunk (wholly unknown in this use), limb, branch, twig, leaves, etc.

e. Various *bodies of water* were listed—ocean, sea, lake, gulf, river, rivulet, stream, creek, pond, bay, inlet, canal, channel, whirlpool, brook, spring, falls, ditch, pool, puddle. This proved to be a splendid lesson in geography because maps of both the United States and Europe had been completed as a project and the actual location of oceans, bays, etc., could be pointed out. And further, in this connection, salt and fresh water were discussed; the different types of boats became a source of real interest—steamers, the merchant marine, sailboats, vessels, canoes, rafts, etc., and there was lively interest in the inhabitants of bodies of water—whales, fishes, frogs, etc., and a detailed report on fishing.

f. An interest in *animals* arose from a discussion of fur. (A new fur coat made its appearance following the Christmas vacation.) Many interesting incidents and stories were related by the girls in connection with this subject. Thickness of fur (due to geographic location of the animal), habits of animals, characteristics such as slyness of the fox, industry of the beaver, etc., the difference between "wild" and "domestic or tame" pointed out.

g. The word "shack," found in a newspaper article about Dillinger led to an interest in types of *buildings*—houses, home, residence, cottage, bungalow, chalet, villa, shack, apartment buildings, office buildings, government buildings (federal, national, county, state, city, community, were distinguished), churches, cathedrals "House of God," chapel (famous cathedrals were mentioned), hotels, schools, factories, etc., and whatever of interest could be recalled was brought up—for instance, the difference between the modern, well ventilated factory as compared with the old "sweatshop." (Modern, ancient, new, old, old-fashioned, new-fangled, and similar words were presented.)

h. An *imaginary trip* was planned—beginning with the purchase of luggage (new word), types of luggage—satchel, bag, suitcase, Gladstone, overnight bag, Boston bag, etc.—all were pointed out; different kinds of leather and materials used for luggage were discussed; expressions used in making purchases were reviewed;

orders for it given, etc. A complete wardrobe was purchased, the luggage was packed, tickets purchased; train examined from engine to baggage car and the various parts named, and the different people in charge of a train were given their proper names—engineer, conductor, chef, steward, etc. A day was spent on the train and the pupils told of their activities, the sights, their interests, and even selected the food on the diner!

i. Different *modes of travel* were enthusiastically debated —by rail, by water, by bus, by car, by aeroplane, by bicycle, by tramping, etc. The comparative speed of each was a source of interest. (Only present-day methods were mentioned and for a future lesson the romantic development of modes of transportation can be discussed—the pony express, the stagecoach, the covered wagon, the first railroad, the first transcontinental train, and many another historical event. This opens up a vast literature that is of the keenest interest.)

j. Much emphasis was placed upon the *activities in everyday life*—the ways of introducing people, the acknowledging of an introduction, ways of extending invitations and accepting them graciously, various things to say by way of greeting people, by way of congratulating individuals on honors, marriage, the birth of a child, and following other events and ceremonies. ("Ceremony" was a new word and proved of much interest. It was frequently used.)

k. *Time expressions* were studied—time of year, seasons, time of day, time by the clock; at dawn, at daybreak, in the morning; one-fifteen, 15 minutes past one; a quarter past one, 15 minutes after the hours, etc.

l. With a speech assistant, the imaginary *furnishing of* the various *rooms* in a home was a topic of conversation for many days. It was surprising to find how few names of articles of furniture the pupils actually knew. There was discussion of types of materials (woods) used in furniture, materials for drapes, types of furniture (period, etc.), and the individual pieces of furniture—dresser, chest of drawers, highboy, chiffonier, bureau, etc., settee, davenport, lounge, love-seat, etc.

8. *Pictures of scenes,* incidents (the cherry blossoms in Washington, D.C., the California missions, a day at a circus, some of the famous paintings) were brought to the classroom and the pupils were asked to describe and interpret them, expressing their ideas in different ways.

9. *Current events* were never neglected and opinions on certain of them asked, to make the young women think about history in the making, and to formulate some sort of opinion on simple subjects and problems.

10. *Fashion magazines* were used and certain gowns especially admired were described—as to color, style, ruffles, pleats, laces, buttons, tucks and every other type of trimming and material. Garments worn by both men and women were listed and it was surprising to discover that even some of the most common ones were not known by name.

11. A *wedding* (description) was naturally of intense interest. All the participants were named, bride, bridegroom, maid of honor, matron of honor, bridesmaids, flower girl, ring bearer, ushers, minister (preacher), priest, rector, rabbi and the various religious denominations—Methodist, Presbyterian, Catholic, Scientist, etc., became a part of the "ceremony"). A few of the simple traditions about a wedding were explained—the rice throwing, old shoes, the wearing by the bride of "something old, something new, something borrowed, something blue," the throwing of the bouquet, the honeymoon. Relationships were explained, "in-laws" in particular.

12. *Interest in reading* was stimulated at every opportunity, and the families asked to co-operate.

The material presented gives some idea of the approach to the problem of enriching the vocabulary, of making it possible for these pupils to get ideas and to express them adequately. New words were always given orally first, to improve lip-reading, and then written—if necessary—to get the visual stimulus and the correct spelling. New words were carefully explained, illustrations given, and the pupils as often as possible were asked to use them in phrases or sentences, especially if the understanding of the term seemed doubtful. The opportunity for practice in giving sounds correctly was unlimited, and was a necessary and regular part of the day's work. The emphasis, however, was on ideas.

As much of the work as possible was *dramatized*—introductions, invitations, the idea of strolling, strutting, short

dialogues (some original), stories read, and speeches of congratulations, chats at a tea, etc., etc. The pupils responded well and entered into the spirit of the game.

That these two individuals remembered everything that was presented, is not to be implied. If only a third or even a fourth of the ideas presented made a slight contribution, the time and effort will have been infinitely worth while. Occasional tests, of various types—both written and oral, completion, original work—indicated that many ideas, words and expressions were retained and were used, and that many more were recognized in reading materials. It was most gratifying to listen to a description of a *real* wedding one of the young ladies attended and to discover that words were remembered, ideas could be expressed and expressed in proper *sequence.* And no less pleasing was a comment in the presence of the instructor many months after the particular expression was first given—made spontaneously and naturally: "That's a very trim and smart-looking outfit. It's so becoming to you,"—a complete sentence quite in contrast to her description of a sunset some nine months earlier when a sweep of the hand indicated the extent, the word "beautiful" and the word "rosy" her only verbal responses.

Miscellaneous

I.S.F.

Research Committees.—Announcement is made of the appointment of an active committee and an advisory committee on research problems connected with the education of the deaf.

1. Joint Research Committee of the Conference of Executives of American Schools for the Deaf and the Convention of American Instructors of the Deaf:

Supt. Alvin E. Pope, New Jersey School, *Chairman,*
Supt. Victor O. Skyberg, New York School, *Secretary,*
Managing Officer D. T. Cloud, Illinois School,
Dr. Percival Hall, Gallaudet College,
Dr. Harris Taylor, Lexington School.

2. Advisory Committee:

Prof. Irving S. Fusfeld, Gallaudet College, *Co-ordinating Chairman,*
Dr. Knight Dunlap, Johns Hopkins University,
Dr. Max A. Goldstein, Central Institute,
Dr. Vern Knudsen, University of California,
Miss Bessie N. Leonard, Clarke School,
Dr. Elise H. Martens, U. S. Office of Education,
Prof. Donald G. Paterson, University of Minnesota,
Dr. R. Pintner, Teachers College, Columbia University,
Dr. Frank H. Reiter, Pennsylvania Department of Public Instruction,
Mr. A. L. Roberts, National Fraternal Society of the Deaf,
Dr. Wm. M. Thompson, University of Omaha.

Certification.—An important announcement concerning certification of teachers in schools for the deaf appears on pages 191-2 of this number of the Annals.

To the lists previously printed must be added the names of the following applicants for certification under the Conference:

Kathryn Clarice Boyles, West Virginia School,
Stahl Butler, Cave Spring, Ga.,
Mary Adelaide Coffey, West Virginia School,
Annie Van Arsdale Craig, Iowa School,

Hope Divine, Louisiana School,
Margaret E. Fitzpatrick, Indiana School,
Konrad Alfhild Hokanson, Iowa School,
Marguerite Osborne Jenkins, West Virginia School,
Rose Koslow, Reinhardt School,
Lillian L. Miller, West Virginia School,
Ollie Evans Raymond, West Virginia School,
Thelma Louise Schoppert, West Virginia School,
Mildred Susan Smith, Jacksonville, Ill.,
Elsie Vaiden Spicer, Idaho School,
Mary Ann Strickler, West Virginia School,
Laura Tittsworth, Idaho School.
Myrtle McDonald Tucker, West Virginia School.

Association Summer School.—A summer school for teachers of the deaf, under auspices of the American Association to Promote the Teaching of Speech to the Deaf, will be held this year at the University of Toronto, Toronto, Canada. The session will continue for the six-weeks period beginning July 2 and ending August 9. A special building of the university will be set aside for the needs of the summer session, and the university will authorize a certificate of credit for all the Association courses taken. The tuition fee will be $35.00, plus $5.00 as an Association registration fee. Rooms in the university dormitories will be available at $4.50 a week, and the cost of meals will be found moderate.

Dr. E. A. Gruver, president, Dr. Harris Taylor, chairman of the executive committee, and a summer school committee of the following: Dr. O. M. Pittenger, chairman, Miss Mabel E. Adams, Miss Edith M. Buell, and Mr. T. C. Forrester, are making the necessary arrangements for requirements of admission, courses, instructors, and registration. Further information may be obtained from the Volta Bureau, 1537 35th Street, Washington, D.C.

Relation Between Drugs and Deafness.—Dr. H. Marshall Taylor, of Jacksonville, Florida, in an article "Further Observations on Prenatal Medication as a Possible Etiologic Factor of Deafness in the New Born," in the *Southern Medical Journal,* February, 1935, discusses the use of drugs as a possible cause of deafness. The general literature of otology

indicates that certain drugs have a marked selective action for the auditory organs, that such drugs circulating in the blood stream affect the eighth nerve more often than any other of the sensory nerves. It appears, too, that certain individuals are especially susceptible to the effects of drug action. Various investigators have also shown that particularly quinine, the salicylates and alcohol have a deleterious effect upon the delicate mechanism of the ear. In the South especially quinine is often taken during pregnancy not only to induce labor but also for the treatment of a malarial condition. The placenta, Dr. Taylor believes, is permeable to those drugs that cause nerve deafness, and they easily pass into the fetal circulation, imparting their toxic effects to the fetus. Various case studies, in which quinine was reported used in the treatment of disease concurrent with pregnancy, reveal total deafness in the offspring, despite the absence of any family history of deafness or consanguinity.

Further plausibility in the theory that such drugs as quinine, salicylates and alcohol may be etiologic factors producing deafness in the new born is found by Dr. Taylor in studies made by Dr. Fritz Heider, of the Research Department of the Clarke School. Dr. Heider, in a recent statistical study of the birth dates of pupils in schools for the deaf, discovered an unprecedented rise in the number of children born deaf during the season of the year when malaria is most prevalent in the South, a disease for which quinine is frequently used in treatment.

The study of the relation between infant deafness and medicinal treatment in the mother during pregnancy becomes one of great significance to the entire problem of deafness. It is Dr. Taylor's opinion:

> That the otologist has practically ignored the possible significance of prenatal medication in infant deafness may be due to the difficulty of early diagnosis. A child must be two and one-half to three years old before a diagnosis of nerve deafness can be made and by that time the prenatal history has generally been dismissed. The usual history consists principally of whether or not there has been a family history of deafness, consanguinity, hereditary syphilis or meningitis. It seems, however, that inquiry regarding the drugs given the mother during pregnancy may yield information quite as important as whether the patient had a great uncle or a second cousin who was deaf. If a large number of otologists will in future, when dealing with cases of children with nerve deafness, be careful to include in the usual questionnaire the history of drugs administered

to the mother during pregnancy, there may in due time be collected sufficient data to establish prenatal medication as an etiologic factor in such cases as come under the broad classification of congenital deafness.

In a letter to the editor of the ANNALS, Dr. Taylor offers this suggestion concerning children admitted to schools for the deaf:

I hope in due time there will appear on application blanks for admission to schools for the deaf questions relative to drugs administered to the pregnant mother. I feel very positive that drugs which produce nerve deafness when administered to the mother can affect the fetus. How frequently this occurs has not yet been determined, and doubtless idiosyncrasy plays a major part. I was interested to learn that in one of the lying-in hospitals in New York incidents of tinnitus and deafness, of the mothers who were given quinine in the induction of labor, were so frequent that no records were made on the charts.

Biography of an Error.—The article by Dr. H. Marshall Taylor, referred to in the item immediately preceding this, dealing with the probability that drugs administered to pregnant mothers may result in auditory deficiency in the offspring, is introduced with the statement:

That 3,000,000 of the estimated 10,000,000 deaf persons in the United States are children is an arresting assertion.

By deaf persons, Dr. Taylor means, of course, all those who have any degree of auditory impairment, thus including the great numbers of the hard of hearing. This is followed with a reference to a study, by Dr. G. E. Shambaugh and assistants, of statistics of children in public schools for the deaf in which 62.15 per cent, or 3,334, of the 5,348 deaf children examined, were listed as congenitally deaf.

In an interesting item headed "Quinine & Deafness," *Time,* in its issue for March 11, discussed the conclusions of Dr. Taylor, particularly the malaria-quinine-deafness sequence. Since Dr. Shambaugh's study showed almost two thirds of the children examined in *schools for the deaf* classified as congenitally deaf, *Time* concluded that two thirds of the three million deaf children in Dr. Taylor's statement must also be children born deaf. Hence it states:

Of the 10,000,000 deaf people in the United States, 3,000,000 are children. Of the 3,000,000 deaf children, almost 2,000,000 were born deaf.

Applying the same logic, it would be reasonable to assume then that of Dr. Taylor's estimate of 10,000,000 "deaf"

persons, between six and seven million were also congenitally deaf.

The fallacy of *Time's* reasoning, however, is not confined to its own pages. In the column "Answers to Questions," conducted by Frederic J. Haskin in the Washington *Evening Star*, March 19, appeared this inquiry:

> How many deaf children are there in the United States?

to which Mr. Haskin replied with the following assertion, practically a paraphrase of the statement in *Time:*

> Of the ten million deaf persons in this country, three million are children. Of this number, two million were born deaf.

Inquiry addressed to the information bureau conducted by Mr. Haskin brought this answer:

> The information contained in our column concerning the number of deaf children in the United States was taken from the magazine *Time*, March 11, 1935, issue, page 35.

Provision for Increased Enrollment at Gallaudet College.—At the request of the Secretary of the Interior, Senator Walsh introduced a bill in the Senate providing for an increase in the number of scholarships to candidates for admission to Gallaudet College. The endorsement from Mr. Ickes was contained in a series of letters to Senator Walsh:

INTERIOR DEPARTMENT,
Washington, January 17, 1935.

Hon. DAVID I. WALSH,
Chairman Committee on Education and Labor,
United States Senate.

MY DEAR MR. CHAIRMAN: Enclosed is a copy of a proposed bill to amend section 4865 of the Revised Statutes, as amended, increasing the number of beneficiaries from the several States and Territories who may be admitted to the collegiate department of the Columbia Institution for the Deaf.

For the education of deaf-mutes in the District of Columbia, the United States has established and maintains the Columbia Institution for the Deaf. The advanced department, known as Gallaudet College, accepts students from outside the District, most of whom are in poor circumstances and need the help of the scholarships offered by the institution. Although Congress has restricted the number of such beneficiaries, it has progressively expanded its authorization to provide for a steadily increasing demand for enrollment. Thus the original limit of 40 has been increased first to 60, then to 100, and finally in the year 1918 to 125. The enrollment has again reached a point where authority to increase the number is necessary.

It is respectfully requested, therefore, that this bill be placed before the Senate for appropriate action.

Sincerely yours,

HAROLD L. ICKES,
Secretary of the Interior.

INTERIOR DEPARTMENT,
Washington, February 7, 1935.

Hon. DAVID I. WALSH,
United States Senate.

MY DEAR SENATOR WALSH: Your letter of January 23 expresses a desire for further detailed information in connection with S. 1180, which you introduced at my request.

The Columbia Institution for the Deaf was created by the act of February 16, 1857 (c. 46, 11 Stat. 161), to furnish instruction to the deaf-mutes of the District of Columbia, and if necessary to pay for their tuition and maintenance therein. The institution was authorized to accept, also, deaf-mutes from any of the States and Territories. The advanced department, known as "Gallaudet College," was authorized by the act of April 8, 1864 (c. 52, 13 Stat. 45), which empowered the directors to confer collegiate degrees. Since 1867 free scholarships have been offered for the collegiate instruction of beneficiaries from the States and Territories.

As the collegiate department grew in size, the number of free scholarships was increased. The last change was made by act of July 1, 1918, when the number was enlarged from 100 to 125. It has now been more than 16 years since any increase has been made in the number of scholarships.

In the year 1918-19 the total number of students in the college was 106. At the opening of the present year the total number was 131. Nearly all of the students come from homes in which the parents are not well to do, and a very large percentage have to be assisted by scholarships. All the scholarships this year were taken up and only 20 to 30 will be vacated by graduation and dismissal in June 1935. The institution is usually asked to accept some 40 new students at the beginning of each college year in the fall. It is necessary, therefore, that the number of scholarships be increased, if the college is to continue to grow and to give aid to these young people.

During its long existence the institution has given an advanced education to nearly 1,900 students. Nearly 1,000 have received collegiate degrees. Partly at least through their educational opportunities, these young people have become self-sustaining citizens. They are engaged in art, architecture, bacteriology, chemistry, printing, publishing, photography, missionary work to the deaf, teaching the deaf, agriculture, library cataloging, government service, and other types of work, many of which they could not have entered without advanced educational preparation.

If it is the pleasure of the committee, President Percival Hall will be very glad to appear, at the convenience of the committee, and furnish any information regarding the institution.

I trust that the committee will regard the bill favorably.

Sincerely yours,

HAROLD L. ICKES,
Secretary of the Interior.

INTERIOR DEPARTMENT,
Washington, February 23, 1935.

Hon. DAVID I. WALSH,
United States Senate.

MY DEAR SENATOR WALSH: You have requested information relating to the cost of the additional scholarships for Gallaudet College authorized by S. 1180, which you introduced at my request.

The expense of such scholarships is borne by the United States. It is included in the annual estimate for the Columbia Institution for the Deaf, and it is covered by the regular appropriation for that institution.

No increase in expense by virtue of the additional scholarships is anticipated for the fiscal year ending June 30, 1936. As the college gradually expands, however, it is expected that the additional scholarships would be granted. At the present rate of expansion the full increased authorization would be utilized in perhaps 5 or 10 years. Since the cost of each scholarship is approximately $750 a year, it is estimated that the increased authorization would eventually result in an increased expenditure of approximately $15,000 each year.

Sincerely yours,

HAROLD L. ICKES,
Secretary of the Interior.

The proposal was acted upon favorably by the Senate, in the following form:

AN ACT

To amend section 4865 of the Revised Statutes, as amended.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the number of beneficiaries from the several States and Territories authorized by section 4865 of the Revised Statutes, as amended, for admission to the collegiate department of the Columbia Institution for the Deaf, be, and it hereby is, increased from one hundred and twenty-five to one hundred and forty-five.

Passed the Senate March 4, 1935.

Attest:

EDWIN A. HALSEY, *Secretary.*

The bill awaits action in the House of Representatives, where it is at present with the committee on education.

An Association of Superintendents and Teachers in Australia.—The First Commonwealth Conference of Superintendents and Teachers of the Deaf was held at the Victorian Deaf and Dumb Institution, Melbourne, Australia, January 7 to 11, 1935. The first day's sessions presented a review of the maintenance and training of the deaf child as provided by the several provinces of the Australian commonwealth. On the second day the program considered first the advisability of forming a commonwealth association of superintendents and instructors, with a plan for certification of teachers, and followed with discussion of special subjects, including speech and lip-reading, the semi-deaf in school, and the intelligence of deaf children. The third day was devoted to a discussion of the physical side of deafness, including research and tests, and to papers on related subjects.

One of the papers read was on "Psychological Tests of the Deaf," by Dr. R. Pintner of Teachers College, Columbia University, and another by Dr. Ignatius Bjorlee of the Maryland School on "Observations on Vital Factors in the Education of the Deaf." The fourth and fifth days were taken up by committee reports, organization, and suggestions concerning administrative problems.

A motion to found a Commonwealth Association of Teachers of the Deaf was adopted. An examining board will be appointed and examinations conducted for admission to the Association as Licentiate, Associate or Fellow. Candidates for the examinations of the Association will be restricted to persons actually engaged in the profession of teaching the deaf and must have had six years, eight years and thirteen years experience, respectively, at a recognized school for the deaf before presenting themselves for examination for the degree of Licentiate, Associate, or Fellow as the case may be.

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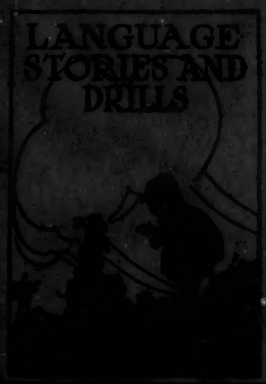

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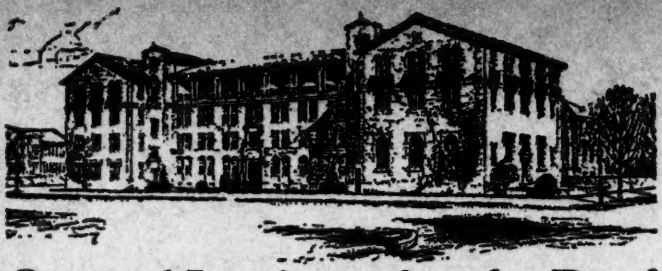

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